

August 27, 2012

Contract Documents and Specifications  
for the  
Kansas Department of Health and Environment  
Surface Mining Section

# **2012 COAL VERTICAL OPENINGS & SUBSIDENCES**

## **EXCAVATION AND BACKFILLING PROJECT**

Crawford and Cherokee Counties, Kansas



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Kansas Department of Health and Environment  
Surface Mining Section  
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Approved:

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Gary Blackburn, Director, BER

**KDHE - SURFACE MINING SECTION  
ABANDONED MINE LAND PROGRAM**

**2012 COAL VERTICAL OPENINGS AND SUBSIDENCES  
EXCAVATION AND BACKFILLING PROJECT**

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**U.S. Department of the Interior**

**Certifications Regarding Debarment, Suspension and  
Other Responsibility Matters, Drug-Free Workplace  
Requirements and Lobbying**

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters – Primary Covered Transactions – **The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transaction,” provided by the department or agency entering into this covered transactions and in all solicitations for lower tier covered transactions.** See below for language to be used or use this form certification and sign. (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions – (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements – Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) – (See Appendix C of Subpart D of 43 CFR Part 12)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

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**PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters -  
Primary Covered Transactions**

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*CHECK \_\_\_\_ IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE*

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency
  - b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal of State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of record, making false statement, or receiving stolen property;
  - c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
  - d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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**PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion –  
Lower Tier Covered Transactions**

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*CHECK \_\_\_\_ IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE.*

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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**PART C: Certification Regarding Drug-Free Workplace Requirements**

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*CHECK \_\_\_\_ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL*

Alternate I (Grantees Other Than Individuals)

- A. The grantee certifies that it will or continue to provide a drug-free workplace by:
- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
  - (b) Establishing an ongoing drug-free awareness program to inform employees about –
    - (1) The dangers of drug abuse in the workplace;
    - (2) The grantee's policy of maintaining a drug-free workplace;
    - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
    - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
  - (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
  - (d) Notifying the employee in the statement required by paragraph (1) that, as a condition of employment under the grant, the employee will –
    - (1) Abide by the terms of the statement; and
    - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
  - (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;
  - (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted –
    - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
    - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
  - (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).
- B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Check \_\_\_\_ if there are workplaces on files that are not identified here.

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**PART D: Certification Regarding Drug-Free Workplace Requirements**

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*CHECK \_\_\_\_ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL*

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;
- (b) If convicted of a criminal drug offence resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the federal agency

designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

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**PART E: Certification Regarding Lobbying**  
**Certification for Contracts, Grants, Loans, and Cooperative Agreements**

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*CHECK \_\_\_\_ IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND  
THE AMOUNT EXCEEDS \$100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT;  
SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.*

*CHECK \_\_\_\_ IF CERTIFICATION FOR THE AWARD OF A FEDERAL  
LOAN EXCEEDING THE AMOUNT OF \$150,000, OR A SUBGRANT OR  
SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.*

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

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SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

---

TYPED NAME AND TITLE

---

DATE

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**END OF DOCUMENT**

# AML CONTRACTOR INFORMATION FORM

**You must complete this form for your AML contracting officer to request an eligibility evaluation from the Office of Surface Mining to determine if you are eligible to receive an AML contract. This requirement applies to contractors and their sub-contractors and is found under OSM's regulations at 30 CFR 874.16.**

## Part A: General Information

Business Name: \_\_\_\_\_ Tax Payer ID No.: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_ Phone: \_\_\_\_\_  
Fax No.: \_\_\_\_\_ E-mail address: \_\_\_\_\_

## Part B: Legal Structure

( ) Corporation      ( ) Sole Proprietorship      ( ) Partnership      ( ) LLC  
( ) Other (please specify) \_\_\_\_\_

### **Part C: Certifying and updating information in the Applicant/Violator System (AVS).**

Select only one of the following options, follow the instructions for that option, and sign below.

I, \_\_\_\_\_, have the express authority to certify that:  
(print name)

1. \_\_\_\_\_ Information on the **attached** Entity Organizational Family Tree (OFT) from AVS is accurate, complete, and up-to-date. If you select this option, you **must** attach an Entity OFT from AVS to this form. Sign and date below and do not complete Part D.
2. \_\_\_\_\_ Part of the information on the **attached** Entity OFT from AVS is missing or incorrect and must be updated. If you select this option, you **must** attach an Entity OFT from AVS to this form. Use Part D to provide the missing or corrected information. Sign and date below and complete Part D.
3. \_\_\_\_\_ Our business currently has no information in AVS. If you select this option, you must provide all information required in Part D. Sign and date below and complete Part D.

Date

Signature

Title

**IMPORTANT! In order to certify in Part C to the accuracy of existing information in AVS, you must obtain a copy of your business' Entity OFT. To obtain an Entity OFT, contact the AVS Office, toll-free, at 800-643-9748 or from the AVS website at <https://avss.osmre.gov>.**

**Part D.**

**Contractor's Business Name:** \_\_\_\_\_

If the current Entity OFT information for your business is incomplete or incorrect in AVS, or if there is no information in AVS for your business, you must provide all of the following information as it applies to your business. Please make as many copies of this page as you require.

Every officer (President, Vice President, Secretary, Treasurer, etc.); All Directors;

All persons performing a function similar to a Director;

Every person or business that owns 10% or more of the voting stock in your business; Every partner, if your business is a partnership;

Every member and manager, if your business is a limited liability company; and Any other person(s) who has the ability to determine the manner in which the AML reclamation project is being conducted.

Name	_____	Position/Title	_____
Address	_____	Telephone #	_____
	_____	% of Ownership	_____
Begin Date:	_____	Ending Date:	_____

Name	_____	Position/Title	_____
Address	_____	Telephone #	_____
	_____	% of Ownership	_____
Begin Date:	_____	Ending Date:	_____

Name	_____	Position/Title	_____
Address	_____	Telephone #	_____
	_____	% of Ownership	_____
Begin Date:	_____	Ending Date:	_____

Name	_____	Position/Title	_____
Address	_____	Telephone #	_____
	_____	% of Ownership	_____
Begin Date:	_____	Ending Date:	_____

PAPERWORK REDUCTION STATEMENT

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501) requires us to inform you that: Federal Agencies may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. This information is necessary for all successful bidders prior to the distribution of AML funds, and is required to obtain a benefit.

Public reporting burden for this form is estimated to range from 15 minutes to 1 hour, with an average of 22 minutes per response, including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. You may direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Office of Surface Mining Reclamation and Enforcement, Room 202 SIB, Constitution Ave., NW, Washington, D.C. 20240.

## **Instructions for Completing AML Contractor Form OMB #1029-0119<sup>1</sup>**

**Part A: General Information.** Part A should be completed by the AML Contractor.

**Part B: Legal Structure.** Part B should be completed by the AML Contractor.

**Part C: Certifying and updating information in the Applicant/Violator System (AVS).** Part C should be completed by the AML Contractor, selecting the statement that best describes their situation.

If information is accurate, complete and up-to-date, then check the first statement and sign and date. Attach the Entity OFT printout to the OMB #1029-0119 form and submit the form and attachment to the AML Contracting Officer your business is working with.<sup>2</sup>

Upon reviewing an Entity OFT printout, if you discover the information contained in AVS is not accurate, complete and up-to-date, then check the second statement and complete Part D to provide missing or corrected information that needs reflected in AVS. Attach the Entity OFT printout to the OMB #1029-0119 form and submit the form and attachment to the AML Contracting Officer your business is working with.

If your business does not appear to have any information in AVS, then check the third statement and complete Part D. Submit the OMB #1029-0119 form to the AML Contracting Officer your business is working with.

**Part D:**

If current Entity OFT information for your business is incomplete, incorrect, or if you believe there is no information currently in the AVS for your business, you must complete Part D. Submit the OMB #1029-0119 form to the AML Contracting Officer your business is working with.

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<sup>1</sup> If you need any assistance completing OMB #1029-0119, please contact the AVS Office at 800.643.9748.

<sup>2</sup> You may obtain your business' Entity OFT for certification purposes two ways. One way is to contact the AVS Office at 800.643.9748 and request the information. The second way is to access the AVS from your personal computer by visiting <https://avss.osmre.gov>. Click "Access AVS", and then Login as Guest. Place your cursor on the "Entity" Module and "Click". Type your business name in search box and press enter key. If more than one entity record appears, select your company and then "Click" on the "relationship" tab to display your Entity OFT information. Print the Entity OFT from AVS.



Contract Documents and Specifications  
for  
Kansas Department of Health and Environment  
Surface Mining Section

**DIVISION 1 - GENERAL REQUIREMENTS**

**SECTION 01010**  
**SUMMARY OF WORK**

**INDEX**

**SECTION 01010 - SUMMARY OF WORK**

**PART 1 - GENERAL**

- |     |                                   |
|-----|-----------------------------------|
| 1.1 | Description                       |
| 1.2 | Technical Contract Specifications |
| 1.3 | Contract Drawings                 |

## **SECTION 01010**

### **SUMMARY OF WORK**

#### **PART 1 - GENERAL**

##### **1.1 Description**

###### **A. General**

The work to be performed under these Contract Documents comprises the Vertical Openings and Subsidence, Excavation and Backfilling Project, for the Kansas Department of Health and Environment, Surface Mining Section, Abandoned Mine Land Program. This Contract will include backfilling of dangerous open sinkholes of unknown depth, abandoned mine shafts, and depressions resulting from subsidence. Construction work included in the Project consists of the following general classifications of work:

1. Site clearing and/or removal of debris
2. Excavation of earth and other material to a stable configuration
3. Backfilling voids with various combinations of materials
4. Replacement of topsoil (or other surface) and grading
5. Cleanup and revegetation

###### **B. Site Conditions**

1. Most subsidence which arise are related to the underground mining of the Weir-Pittsburg coal seam which occurred 40 to 100 years ago, although other coal seams may be involved. The Weir-Pittsburg seam was mined in southeast Kansas, with the shallowest mining occurring along a line from Pittsburg, KS, to Weir, KS, and then on to Scammon and Turck, KS. Most subsidence have been caused by collapse of the shallow underground mine roofs. In shallow mining areas, subsidence can reach the surface as open voids or holes in the landscape, rather than a depression.
2. Some vertical opening hazards are abandoned mine shafts. The abandoned shafts may be wood or concrete lined; partially filled with trash and other debris; and some are water filled.

###### **C. Project Scope**

1. The intention of this Contract is to backfill as many holes in Crawford and Cherokee Counties as funding permits during each year the Contract remains in effect. The SMS has designated a number of sites which encompassing varying numbers holes or openings. After being awarded a contract, the

## **SECTION 01010**

### **SUMMARY OF WORK**

Contractor will be provided a list of sites, along with recommendations on which are to be abated first. While excavation and backfilling of these sites is in progress, the SMS will identify additional sites to be added to the list and backfilled depending on available funding. Some of these holes appear overnight but do not meet the criteria to be repaired under the Emergency Program.

2. Funding may be renewed each year and sites not filled during one year will be moved to subsequent year's lists. The Contractor shall continue to excavate and backfill the sites until advised to cease work by the SMS.
3. This contract covers the work and materials necessary to backfill SMS designated subsidence sites for a one year time period as designated on the Contract documents.
4. Generally, work at most of the sites will include:
  - a. Large well graded shot rock in the bottom of the excavated hole to reduce further settling and prevent the fill from continuing to wash down the hole. (Some may be grouted to reduce infiltration and improve stability at the SMS's discretion and direction.);
  - b. Six inches to one foot layer of AB-3 or crushed stone on top of the shot rock to fill the voids;
  - c. About 2 feet of compacted clay on top of the crushed stone;
  - d. Sufficient clay, spoil, or other suitable material as required to reach the surface depending on the hole depth; and,
  - e. Approximately 1 foot of topsoil covering, graded to drain.

#### **D. Equipment Requirements**

1. The Contractor shall furnish the appropriate types and sizes of equipment to perform the tasks required during the clearing, trash removal, excavation, backfilling operations, and other required work, in a safe and timely manner. Equipment which may be required includes, but is not limited to:
  - a. Tire-mounted backhoe/loader combination
  - b. Track-mounted backhoe

**SECTION 01010**  
**SUMMARY OF WORK**

- c. Small to Medium Dozers
  - d. Front-end Loader (wheeled or tracked)
  - e. Air compressor and jackhammer
  - f. Concrete saw
  - g. Skid Steer Loader w/ Accessories (Bobcat)
  - h. Small tractor
  - i. Dump trucks
  - j. Concrete/Grout pump
- 2. The Contractor will be required to furnish compaction equipment for the backfill. Depending on the site, this may include air or gasoline tampers, and vibratory roller for hand tamping, as well as wheeled equipment and/or towed rollers for machine compaction.
  - 3. As part of the bid package, the bidders shall submit a list of the available equipment to be used if awarded this contract. The equipment type and suitability of the equipment will be considered in evaluation of the bids.
  - 4. The Contractor shall also furnish any miscellaneous tools and equipment required to complete the work. This may include, but is not limited to shovels, rakes, wheelbarrow, water pumps, seeding equipment, lime and fertilizer spreaders, concrete finishing equipment, chain saws, etc.
- D. Contract Renewal
- 1. The right is reserved to renew this contract for four (4) additional twelve (12) month periods at the same prices, terms, and conditions, if agreeable to the contract parties. A written approval will be requested for the renewal. Contract adjustments for inflation may be included in contract renewals. If the parties cannot agree on renewal terms, it is hereby understood that the contract may be rebid.
  - 2. Depending on site availability, subsequent contract renewals may or may not include as many vertical openings as the initial year's contract, however, the SMS is estimating no less than 30 subsidences or vertical openings (holes)

## SECTION 01010

### SUMMARY OF WORK

will be scheduled for backfilling in any one year depending on cost per vertical opening.

#### E. Project Bidding

1. **For bid tabulation purposes only**, an estimated quantity for the initially designated shafts and holes was used, based on average quantities for site backfilling in the past.
2. For bidding purposes, the four typical backfill materials noted above have been chosen for use in order to tabulate the bids and obtain a total project estimated cost.
3. Since specific conditions may require any combination of the other materials to backfill a site, it is not possible to estimate a total quantity of all items for multiple sites. Therefore, in order to provide the bidders with some indication of the amount of materials that may be used if required, an estimated quantity per hole for the other materials is noted.

### 1.2 Technical Contract Specifications

The Technical Contract Specifications, which follow and which shall govern the materials furnished and work performed in the construction of the Work covered by this Contract, are divided, classified, designated, and arranged as follows:

DIVISION 1 - General Requirements  
DIVISION 2 - Site Work

### 1.3 Contract Drawings

The Contract Drawings upon which the bids and the Contract are based are listed for information and reference as follows:

<u>Typical Detail Sheet Title</u>	<u>Appendix I Page No.</u>
Riprap Detail	I-1
Opening With Water	I-2
Subsidence (Not Open)	I-3
Opening in Creek Channel	I-4
Opening in Creek Channel with Riprap	I-5
Lined Opening	I-6

**END OF SECTION 01010**

**SECTION 01025**  
**MEASUREMENT AND PAYMENT**

**INDEX**

**SECTION 01025 - MEASUREMENT AND PAYMENT**

**PART 1 - GENERAL**

1.1	Description
1.2	Change Orders
1.3	Pay Items

**SECTION 01025**  
**MEASUREMENT AND PAYMENT**

**PART 1 - GENERAL**

**1.1 Description**

- A. This Section covers methods of measurement and payment for items of work under this Contract. The Contractor may request payments no more frequently than monthly as described in Item 24 of Document D. Partial payments on lump sum items shall be based on the percentage complete at the time of payment request. Payment on unit price items shall be based on the number of units installed at the time of the payment request. Partial payment for materials in advance of installation shall be made upon approval of required submittals and submission of manufacturer's invoice.
- B. The items listed in the Form of Bid shall cover all work required by the Contract Documents. All costs in connection with the proper and successful completion of the work, including furnishing all materials; providing all construction equipment and tools; and performing all necessary labor and supervision to fully complete the Work, shall be included in the bid prices. All work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the bid prices.

**1.2 Change Orders**

Any Change Orders shall be initiated by the SMS or by the Contractor with the approval of the SMS. Change Orders shall not constitute a change in the scope of this Contract.

**1.3 Pay Items**

A. General

The Measurement and Payment for individual material and work items is described in the Division 2 Specifications. Payment for additional items authorized by change orders shall be based on the lump sum and/or unit prices indicated in each change order.

B. Unit Prices

- 1. Payment shall be based on the unit prices shown on the Schedule of Items in the Form of Bid.
- 2. Submission of weigh tickets, invoices, or other verification, will be required for payment.



**SECTION 01025**  
**MEASUREMENT AND PAYMENT**

3. Unit prices shall include all equipment, tools, materials, labor, and supervision to furnish the items bid.
4. Quantities for payment of excavation will be calculated based pre- and post-excavation measurements made after clearing and trash removal, and prior to backfilling.

C. Labor

Labor costs shall be included in the unit and lump sum prices for items bid.

D. Dump Trucks, other Construction Equipment, and Tools

The cost for furnishing and operating dump trucks, and other construction equipment and tools, shall be included in the itemized lump sum and/or unit prices bid for the materials hauled or otherwise handled in association with completion of the excavation and backfilling. Mobilization, operator, fuel, maintenance and any other accountable costs will be included in the lump sum, or price per unit, for the material or work item involved.

E. Materials

1. Payment for backfill materials listed in the Form of Bid will be based on those materials delivered placed as backfill on site. Quantities will be measured and paid by the appropriate unit and be based on delivery and/or weigh tickets submitted by the Contractor with the invoice. All costs associated with procurement of backfill materials, if any, shall be the responsibility of the Contractor.
2. Backfill materials are available at no cost to the Contractor on some sites such as those holes being backfilled by local grading, or at those sites where spoil ridges or tailings piles are located within a few hundred feet of the holes or shafts. Those sites for which backfill material is available will be identified by the SMS. The Contractor shall use on-site backfill materials if so directed by the SMS.
3. Payment for materials available at no cost to the contractor shall be bid and paid on an estimated per cubic yard basis under bid items "Backfill Placement Only" and "Local Grading".

F. Lump Sum Prices for Miscellaneous Site Work

**SECTION 01025**  
**MEASUREMENT AND PAYMENT**

Any one site may contain a number of holes. Payment will be made as a lump sum amount based on the area required for each hole. Prices shall include all labor, materials, equipment, tools, and supervision required to perform the work.

**G. Miscellaneous Materials Required**

Any miscellaneous materials outside the normal scope of the work, which the SMS requests the Contractor to purchase, shall be paid at the invoiced cost plus five (5) percent for handling. Invoices shall include copies of the Contractor's invoices for the material involved.

**1.4 Invoices**

The Contractor's invoices shall include site identification numbers and locations, the dates the work was performed, and itemized list of materials placed and of services performed (including delivery slips and weigh tickets). The Contractor shall submit invoices on a monthly basis and include all sites completed during that period. At the time of the invoice submission, the contractor will also submit a list detailing the days worked on site and the hours the contractor was present on site.

**END OF SECTION 01025**

**SECTION 01041**  
**PROJECT COORDINATION**

**INDEX**

**SECTION 01041 - PROJECT COORDINATION**

**PART 1 - GENERAL**

1.1	Definitions
1.2	Notice to Landowners and Authorities
1.3	Site Administration
1.4	Construction Limits
1.5	Equipment Storage
1.6	Laws and Regulations
1.7	National Pollutant Discharge Elimination System Permit
1.8	Threatened and Endangered Species Act

**SECTION 01041**  
**PROJECT COORDINATION**

**PART 1 - GENERAL**

**1.1 Definitions**

A. Department

Kansas Department of Health and Environment (KDHE)  
Surface Mining Section (SMS)

B. SMS

The Surface Mining Section (SMS) in these Specifications refers to the SMS Staff which is acting on behalf of KDHE to insure work is done in accordance with the Drawings and Specifications.

C. Engineer

The SMS or designee which is acting on behalf of the SMS to ensure work is done in accordance with the Drawings and Specifications.

**1.2 Notice to Landowners and Authorities**

- A. The Contractor shall notify owners of adjacent property and utilities when prosecution of the work may affect them. When it is necessary to temporarily deny access to owners or tenants to their property, or when any utility service connection must be interrupted, the Contractor shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices will conform to any applicable local ordinance and, whether delivered orally or in writing, will include appropriate information concerning the interruption and instructions on how to limit their inconvenience.
- B. Dig-Safe, utilities and other concerned agencies shall be contacted at least 48 hours prior to excavating near underground utilities or pole lines. Existing utilities at the construction site may include, but are not limited to, storm sewer, sanitary sewer, water, electric, telephone, gas, pipelines, cables, and tile lines.
- C. The Contractor shall make all necessary arrangements with utility companies for the preservation of all utility lines and shall replace and/or relocate utility lines as required for construction at their own expense.

**SECTION 01041**  
**PROJECT COORDINATION**

The utilities to be contacted include, but are not limited to local Rural Water Districts and:

Heartland Rural Electric Co-op  
120 N. Ozark  
P.O. Box 40  
Girard, KS 66743  
(620) 724-8521

Craw-Kan Telephone Cooperative, Inc.  
Girard, KS 66743  
(620) 724-8235

- D. The appropriate County Road Department shall be notified one week in advance of any construction within their right-of-way.
- E. The Contractor shall coordinate hauling of any equipment and materials to and from the project with the Counties involved and shall comply with any County haul road policy and/or ordinances. During bidding for a project, and immediately after award of a contract, the Contractor(s) shall notify the County road and bridge department, and other appropriate departments, and advise of the type and extent of equipment and materials to be hauled for the project. For Crawford County, Kansas, the County has requested Contractors comply with County Haul Road Policy as enacted under Resolution 95-159.

**1.3 Site Administration**

The Contractor shall be responsible for all areas of the site used by the Contractor and all Subcontractors in the performance of work. The Contractor shall exert full control over the actions of all employees and other persons with respect to the use and preservation of property and existing facilities.

**1.4 Construction Limits**

- A. The Contractor shall confine his construction operations within the site boundary limits indicated on the Drawings or, where not indicated, within the immediate area required to perform the work.
- B. Use care in placing construction tools, equipment, excavated materials, and construction materials and supplies so as to cause the least possible damage to and interference with property surrounding the site.

## **SECTION 01041**

### **PROJECT COORDINATION**

#### **1.5 Equipment Storage**

Equipment and/or materials can be temporarily stored on site with the approval of the landowner and the Surface Mining Section. Construction materials shall be stored in accordance with manufacturer's instructions.

#### **1.6 Laws and Regulations**

The Contractor is required to comply with all federal, state, county and local laws, regulations, and ordinances in the performance of the work described by these Contract Documents.

#### **1.7 National Pollutant Discharge Elimination System Permit (NPDES)**

A NPDES permit may be required for this project. The Contractor is responsible for compliance with any terms, fees, conditions, and monitoring which may be required. SMS shall obtain the permit, if required. The Contractor covenants, warrants and agrees that it shall comply with all requirements of the Kansas Department of Health and Environment, Surface Mining Section, and the NPDES Permit in regard to the reclamation of the property. The Contractor further agrees to hold harmless, defend and indemnify the KDHE Surface Mining Section against any claim, expense, loss or liability as a result of the Contractor's failure to comply with the NPDES Permit requirements, whether the same are the result of the acts or omissions of the Contractor's agents, servants or employees.

#### **1.8 Threatened and Endangered (T&E) Species Action Permit**

A KDWP T&E action permit to conduct work within the habitat of state and federally listed threatened and endangered species may be required for this project. A copy of the permit (if required) may be obtained by contacting the SMS.

**END OF SECTION 01041**

**SECTION 01050**  
**FIELD ENGINEERING**

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**SECTION 01050 - FIELD ENGINEERING**

**PART 1 - GENERAL**

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| 1.2 | Position, Gradient and Alignment |

**SECTION 01050**  
**FIELD ENGINEERING**

**PART 1 - GENERAL**

**1.1 Dimensions and Elevations**

Verify in the field all dimensions and elevations which are required. Elevations indicated and referred to in the Specifications and on the Drawings are based on the control points shown on the Drawings. These points shall be used as datum for work.

**1.2 Position, Gradient and Alignment**

- A. Competent survey personnel employed and paid by the Contractor shall layout and stake out all control points and reference stakes required for construction of the project. The Contractor shall carefully preserve all monuments, bench marks, and reference points shown on the Drawings and in case of destruction, the Contractor shall be charged with replacement.
- B. All work performed under this Contract shall conform with the lines, grades and elevations shown on the Drawings and within any tolerances which may be set forth in the Specifications. Any work not conforming to the lines, grades, or elevations indicated on the Drawings may be ordered removed and replaced at the Contractor's expense.
- C. The Contractor shall make available to the SMS all survey data which pertains to the layout and construction of the project. Surveys performed for quantity estimates shall also be available to the SMS.

**END OF SECTION 01050**



**SECTION 01090**  
**REFERENCE STANDARDS**

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**SECTION 01090 - REFERENCE STANDARDS**

**PART 1 - GENERAL**

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| 1.1 | General References                         |
| 1.2 | KDOT Standard Specifications               |
| 1.3 | Abbreviations                              |
| 1.4 | Order of Precedence for Contract Documents |

## **SECTION 01090**

### **REFERENCE STANDARDS**

#### **PART 1 - GENERAL**

##### **1.1 General References**

- A. Reference to standard specifications of any technical society, organization, or association or to codes of local or state authorities shall mean the latest standard, code, specification or tentative specification adopted and published at the date of taking bids, unless specifically stated otherwise.
- B. Applicable codes and standards referred to in these Specifications shall establish minimum requirements for equipment, materials, and construction, and shall be superseded by more stringent requirements of Drawings and Specifications when and where they occur.
- C. Any conflicts between Drawings and Specifications and applicable codes and standards shall be referred to the Engineer for a decision thereon.

##### **1.2 KDOT Standard Specifications**

- A. Where reference is made in the Specifications to "KDOT Standard Specification" or "KDOT Standard Number", such reference shall mean the latest edition and revisions of the Kansas Department of Transportation's "STANDARD SPECIFICATIONS for State Road and Bridge Construction", and the standard drawings issued by KDOT.
- B. When these references are made, the referenced section, paragraph, sub-paragraph, drawing, etc. will govern as though it were repeated verbatim herein. However, the reference herein to a specific KDOT Standard Drawing Number, Specification Section, paragraph, sub-paragraph or material specification shall not imply or infer that any other requirements of the KDOT Standard Specifications or Drawings will apply to this Project.

##### **1.3 Abbreviations**

The following abbreviations as used in the Contract Documents are defined to mean the following:

AASHTO	American Association of State Highway & Transportation Officials
ACI	American Concrete Institute
AML	Abandoned Mine Land Program of the SMS
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers' Association
AWWA	American Water Works Association

**SECTION 01090**  
**REFERENCE STANDARDS**

DWR	KDA-Division of Water Resources
KDA	Kansas Department of Agriculture
KDHE	Kansas Department of Health and Environment
KDOT	Kansas Department of Transportation
KDWP	Kansas Department of Wildlife and Parks
NPDES	National Pollutant Discharge Elimination System
OSM	Office of Surface Mining
OSHA	U.S. Department of Labor - Occupational Safety and Health Admin.
SMS	Surface Mining Section of KDHE
SWPPP	Storm Water Pollution Prevention Plan

**1.4 Order of Precedence for Contract Documents**

- A. *General:* Where more than one set of requirements are shown on different Drawings or are in conflict with the Specifications, the most stringent requirements are intended and will be enforced.
- B. *Level of Precedence:*
1. Addenda supersede over all levels.
  2. Technical Contract Specifications supersede Drawings.
  3. Large scale details supersede small scale details, plans and elevations.
  4. Indicated dimensions supersede scaled dimensions.

**END OF SECTION 01090**

**SECTION 01200**  
**PROJECT MEETINGS**

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**SECTION 01200 - PROJECT MEETINGS**

**PART 1 - GENERAL**

1.1	Purpose
1.2	Quality Assurance
1.3	Meeting Schedule and Minutes
1.4	Preconstruction Conference
1.5	Project Meetings

## **SECTION 01200**

### **PROJECT MEETINGS**

#### **PART 1 - GENERAL**

##### **1.1 Purpose**

To enable orderly review during progress of the Work, and to provide for systematic discussions of problems, the SMS shall conduct project meetings throughout the construction period.

##### **1.2 Quality Assurance**

For the person(s) designated by the Contractor to attend and participate in project meetings, the Contractor shall provide written authority for the designated person(s) to commit the Contractor to solutions agreed upon in the project meetings.

##### **1.3 Meeting Schedule and Minutes**

Regular progress meetings will be held, in conjunction with pay estimates, once every month at the SMS office. Additional special project meetings will be held as necessary to address specific problems, issues or questions which cannot be postponed until the regular monthly project meeting. The SMS shall prepare and distribute the minutes from the meetings.

##### **1.4 Preconstruction Conference**

Prior to the commencement of work at the site, a Preconstruction Conference shall be held at a mutually agreed time and place. The Conference shall be attended by the SMS, the Contractor and the Contractor's Superintendent, Principal Subcontractors, Governmental representatives as appropriate, and any others as requested by the Contractor or the SMS. The agenda shall include the following:

1. Project Coordination:
  - a. Designation of Responsible Personnel
  - b. List of Subcontractors and Suppliers
  - c. Utility locations
2. Distribution of Contract Documents and discussion of submittals:
  - a. Construction Schedule and Work Sequence
  - b. Proposed site access points and facility locations
  - c. Proposed water control plan & approval of SWPPP

## **SECTION 01200**

### **PROJECT MEETINGS**

3. Procedures for:
  - a. Field Decisions
  - b. Change Orders
  - c. Applications for Payment
  - d. Creation and Maintenance of Project Records
4. Use of Project Site Premises:
  - a. Traffic Control
  - b. Storage Areas
  - c. Security Procedures
  - d. Temporary Utilities
  - e. Temporary Fences

#### **1.5 Project Meetings**

##### **A. Attendance**

To the maximum extent practicable, assign the same person or persons to represent the Contractor at the project meetings throughout progress of the Work. The Contractor's Superintendent must be present at the meeting. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.

##### **B. Minimum Agenda**

1. Review, revise as necessary, and approve minutes of previous meetings
2. Review progress of the Work since last meeting, including status of submittals for approval
3. Identify problems which impede planned progress
4. Develop corrective measures and procedures to regain planned schedule
5. Review monthly pay estimate
6. Complete other current business

**END OF SECTION 01200**

**SECTION 01300**  
**SUBMITTALS**

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**SECTION 01300 - SUBMITTALS**

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| 1.3 | Water Control                            |
| 1.4 | Site Access Points and Facilities        |
| 1.5 | Required Submittals                      |

## **SECTION 01300**

### **SUBMITTALS**

#### **PART 1 - GENERAL**

##### **1.1 Contractor Availability, Construction Schedule and Work Sequence**

- A. The Contractor is expected to be readily available by business phone from 8:00 a.m. to 5:00 p.m., Monday through Friday.
- B. Site/hole Work Orders for the sites/holes will be issued by the SMS for those site with signed right-of-entries, for which funding remains, and for which there are no other problems such as drainage or sewage. The SMS will keep a running account of the remaining funding available as sites are completed. Work Orders will be issued to insure the maximum number of the most hazardous sites can be filled with the funds allocated. Once the work orders are issued, the Contractor will be able to schedule the reclamation work in the manner most efficient to their operation.
- B. If work falls behind schedule, the Contractor shall submit additional progress reports at such intervals as the SMS may request.
- C. High Priority Hazards
  - 1. This is not "emergency" response reclamation project, however, some flexibility in scheduling sites must be maintained in order to insure those sites which present the highest hazard potential can be filled before others which do not pose as much of a risk. Subsidence repaired under this project will not meet the criteria for an "emergency" and will, therefore be handled by this project.
  - 2. In the event a subsidence or opening is reported with a high hazard priority rating during the Contract period when the Contractor is working on the designated sites, upon completion of the current site, the SMS may require the Contractor proceed to the higher priority at the next site. After the higher priority site has been completed, the Contractor will then be able to move to the next site originally scheduled and resume operations.

##### **1.2 Shop Drawings and Engineering Data**

- A. Shop Drawings and Engineering data covering all materials which will become a permanent part of the Work under this Contract shall be submitted to the SMS for review. These data shall include drawings, descriptive information, and manufacturers= product data.
- B. All submittals shall be identified with the name and number of this Contract, the



## **SECTION 01300**

### **SUBMITTALS**

Contractor's name, and references to applicable specification paragraphs and Contract Drawings.

- C. Submittals which are not acceptable shall be returned to the Contractor within 10 days by the SMS. Returned submittals shall be marked RETURNED FOR CORRECTION. The Contractor shall resubmit returned submittals with correction within 10 days. Delays for submittals shall not constitute an extension of Contract Time.

#### **1.3 Water Control**

The Contractor shall submit a water control plan for the removal of any water from the site. Water shall be removed in accordance with any NPDES requirements and in such a manner as to cause minimum impacts downstream.

#### **1.4 Site Access Points and Facilities**

The Contractor shall identify locations for site access, roads, equipment and material storage, equipment maintenance areas, parking, fuel tank, and any other on site facilities.

#### **1.5 Required Submittals**

Prior to commencement of work on a site, the Contractor shall coordinate the following items with the SMS Inspector or other designated field personnel:

1. Construction Schedule and Work Sequence
2. Proposed site access points and facilities
3. Proposed Water Control Plan
4. Other submittals required by Division 2 Specifications

The Construction Schedule, site access points, and facility locations must be approved by the SMS prior to work commencing at a site.

**END OF SECTION 01300**

**SECTION 01400**  
**QUALITY CONTROL**

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**SECTION 01400 - QUALITY CONTROL**

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1.4	Testing Laboratory Services
1.5	Contractor=s Responsibility
1.6	Test Results

## **SECTION 01400**

### **QUALITY CONTROL**

#### **PART 1 - GENERAL**

##### **1.1 Quality Control, General**

The Contractor shall maintain quality control over subcontractors, suppliers, manufacturers, products, services, site conditions, and workmanship to produce first class work.

##### **1.2 Unfavorable Weather Conditions**

During unfavorable weather, wet or frozen ground, or other unsuitable construction conditions, the Contractor shall confine their operations to work which will not be adversely affected by such conditions, unless special means or precautions are taken by the Contractor to perform the work in a proper and satisfactory manner.

##### **1.3 Manufacturer=s Instructions**

- A. When required by individual Specification Sections, provide at job site manufacturers printed instructions with one copy for inclusion in project record documents file for delivery, storage, assembly, installation, start up, adjusting, and finishing, as appropriate.
- B. The Contractor must comply with instructions in full detail, include each step in sequence. Should instructions conflict with Contract Documents, request clarification from SMS before proceeding.

##### **1.4 Testing Laboratory Services**

The Contractor shall retain and pay for the services of a state certified testing agency or laboratory to conduct materials and construction compliance tests as required by the Specifications. The testing agency or laboratory shall specialize in the required services. The type, number and extent of the materials testing program is described in each respective Section of the Technical Specifications.

##### **1.5 Contractor's Responsibility**

- A. The requirements for specified inspections and tests are not intended to limit the Contractor's responsibility for completion of all work in accordance with requirements of the Contract Documents. Said tests and inspections are intended to establish a minimum testing level which is considered necessary to adequately monitor compliance of construction materials and methods with Contract requirements.
- B. The Contractor shall cooperate with laboratory personnel, provide access to work, notify

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### **QUALITY CONTROL**

laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests, furnish labor and facilities to provide access to work to be tested, and obtain and handle samples at the site.

#### **1.6 Test Results**

- A. Results of inspections or tests shall be submitted to the SMS. The SMS reserves the option to conduct independent tests to validate or amplify the Contractor tests. The SMS shall pay for all costs for any testing which is conducted to verify the Contractor's tests.
- B. Any work found to be in non-compliance with requirements of the Contract Documents shall be corrected by the Contractor and retested. The costs of retesting shall be paid by the Contractor.

**END OF SECTION 01400**

**SECTION 01500**  
**CONSTRUCTION FACILITIES & TEMPORARY CONTROLS**

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**SECTION 01500**  
**CONSTRUCTION FACILITIES & TEMPORARY CONTROLS**

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1.14	Housekeeping Practices
1.15	Water Quality Protection

## **SECTION 01500**

### **CONSTRUCTION FACILITIES & TEMPORARY CONTROLS**

#### **PART 1 - GENERAL**

##### **1.1 General**

The Contractor shall establish, provide, and initiate use of each temporary facility described herein at time first reasonably required for proper performance of the work. All temporary facilities shall be removed by the Contractor prior to final acceptance of the work.

##### **1.2 Utilities**

Unless specifically indicated elsewhere in the Contract Documents, The Contractor shall be responsible for providing all electric, heat, power, water, telephone, sanitary and any other utilities or facilities required to perform the work.

##### **1.3 Maintenance of Traffic**

The Contractor shall conduct its work to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross or obstruct roads, driveways and walks, whether public or private, The Contractor shall provide and maintain suitable and safe bridges, warning signs, detours, and/or other temporary expedients for the accommodation of public and private travel.

##### **1.4 Barricades**

- A. The Contractor is required to coordinate with KDOT, the County Road Department or any other entity having jurisdiction, to ensure that all streets, roads, highways, and other public thoroughfares which are obstructed by construction operations shall be protected by effective barricades on which shall be placed acceptable warning signs. Barricades shall be located at the nearest intersecting public highway or street on each side of the blocked section.
- B. All open trenches and other excavations shall have suitable barricades, signs, or lights to provide adequate protection to the public. Obstructions such as material piles and equipment shall be provided with similar barricades or warning devices.
- C. All barricades and obstructions requiring warning lighting shall be illuminated lights from dusk to dawn. Material storage and conduct of the work on or alongside public streets and highways shall cause the minimum obstruction and inconvenience to the traveling public.

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**CONSTRUCTION FACILITIES & TEMPORARY CONTROLS**

- D. All barricades, signs, lights, and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and, where within the public rights-of-way, as required by the authority having jurisdiction thereof.
- E. The Contractor shall provide barricades in the event a job site must be left unattended. The barricade(s) shall effectively block persons from any areas where a potential danger exists.

**1.5 Fences**

- A. All existing fences located inside the construction limits, shall be maintained by the Contractor until completion of the work. Fences which interfere with construction operations shall be removed and replaced as required for construction of the work in accordance with Section 2100. Fences shall not be dismantled until the landowner or renter is notified and provisions are made for any livestock.
- B. The Contractor shall provide temporary fences in areas where existing fences cannot be maintained due to construction operations.

**1.6 Protection of Public & Private Property**

- A. The Contractor shall execute work in such a fashion as to minimize damage to public or private property. Any damages which occur that are not directly related to the Work Order Requirements will be repaired by the Contractor at no cost to the SMS. Work on some sites may have to be delayed to avoid damage to crops.
- B. The Contractor shall locate and avoid all utility lines, above and below the ground, along with sewer laterals and septic tanks and any other improvements which may be damaged as a result of the Contractor's activities. Per regulations, the Contractor shall be responsible for calling DIG-SAFE (and other utilities which may be involved) in sufficient time to have the utilities located prior to start of work on any site.
- C. All existing site improvements, public or private, which are affected by construction operations shall be repaired or replaced to their original condition or better, whether within or outside the easement.
- D. The Contractor shall be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges, and other public or private property, regardless of location or character, which is the direct or indirect result of an action or omission by the Contractor or Subcontractor in connection with the work on the Project. The Contractor shall make arrangements which are acceptable to the SMS, or the agency or

## **SECTION 01500**

### **CONSTRUCTION FACILITIES & TEMPORARY CONTROLS**

authority having jurisdiction over the damaged property, concerning its repair or replacement or payment of costs incurred in connection with the damage.

#### **1.7 Security**

- A. The Contractor shall be responsible for protection of the site, and all work, materials, equipment, and existing facilities thereon, against vandals and other unauthorized persons.
- B. No claim shall be made against the landowner, tenant, or SMS by reason of any act of an employee or trespasser, and the Contractor shall make good all damage to landowner's property resulting from his failure to provide security measures as specified, except where damage is a result of a direct act of the landowner or tenant.

#### **1.8 Roads**

The Contractor shall establish and maintain temporary access roads to various parts of the site as required to complete the Project. Such roads shall be available for the use of all others performing work or furnishing services in connection with the Project. All access roads within the site shall be reclaimed prior to the seeding in the same manner as graded spoils. All grades shall have a maximum slope of 4h:1v and a minimum slope of 2 percent after reclamation unless specified otherwise. The location of all proposed access roads shall require approval by the SMS prior to construction. Reclamation of all roads shall be required prior to approval of final payment.

#### **1.9 Equipment and Materials Storage and Parking**

The Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project, as required to avoid any need for parking personal vehicles where they may interfere with public or private traffic. Reclamation of all equipment and material storage and parking areas shall be required prior to approval of final payment.

#### **1.10 Dust Control**

The Contractor shall take reasonable measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. Dusty materials in piles or in transit shall be covered when practical to prevent blowing.



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### **CONSTRUCTION FACILITIES & TEMPORARY CONTROLS**

#### **1.11 Temporary Drainage Provisions**

- A. The Contractor shall provide for water discharged from the site in performance of the work. Drainage facilities shall be adequate to prevent damage to the work, the site, and adjacent property.
- B. Existing drainage channels and conduits shall be cleaned, enlarged or supplemented and diversions shall be constructed as necessary to carry all water entering the construction site away from areas of work activity.

#### **1.12 Erosion Control**

The Contractor is required to control erosion due to storm water runoff from construction operations. The Contractor shall initiate erosion control measures prior to the commencement of clearing, grading, excavation, or other operations that will disturb the natural protection. Work shall be scheduled to expose areas subject to erosion for the shortest possible time, and natural vegetation preserved to the greatest extent practicable.

#### **1.13 Sanitary Facilities**

- A. The Contractor shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project.
- B. Sanitary facilities shall be reasonable capacity, properly maintained throughout the construction period, and reasonable obscured from public view. If toilets of the chemically-treated type are used, at least one toilet will be furnished for every 20 workers or fraction thereof.

#### **1.14 Husbandry Practices**

The Contractor shall maintain the project site free of all waste including used parts, used oil and containers, tires, and any other waste generated by construction activities. The Contractor shall maintain entrances to site work in an orderly fashion and will be required to remove any excessive mud or clay deposited on public roads due to traffic from the construction site.

#### **1.15 Water Quality Protection**

- A. Spill Prevention and Response

- 1. *Storage:*

## **SECTION 01500**

### **CONSTRUCTION FACILITIES & TEMPORARY CONTROLS**

Fuel, chemicals, and other materials stored at the project site shall be stored in a manner that minimizes the discharge of product, either accidental or otherwise, to waters of the state. Storage containers shall not be located adjacent to or near any water ways (streams, rivers, ponds, etc.) or where sanitary drains exist and there is a potential that a release would come into contact with the waters of the state. The SMS must approve the location of any temporary product storage or equipment staging areas and may require construction of containment berms around storage areas.

#### *2. Security:*

The Contractor shall be responsible for protection of the site, and all work, materials, equipment, and existing facilities thereon against vandals and other unauthorized persons.

#### *3. Waste Products From Fueling Processes:*

Used filter/separator elements shall be containerized and disposed of properly. Water collected in filter/separator sumps must be collected and containerized for proper disposal. Product remaining in product delivery hoses must be collected and recycled or disposed of properly. Fuel drained from fuel/water separators must be collected and disposed of properly.

#### *4. Spill Control:*

The Contractor shall avoid overfilling tanks by attending hoses and nozzles at all times, gauging tanks, and topping off containers at reduced rates. Equipment is to be inspected daily for leaks. Leaks are to be contained and repaired upon discovery.

#### *5. Spill response:*

In the event of a spill, the contractor will be required to contain the spill by constructing a berm or dike. The source of the leak must be eliminated if feasible by using a wooden plug, repair putty, rubber matting, etc. Transfer the remaining product to a suitable container.

Contact the SMS either in person or by telephone, at (620) 231-8540, and provide the following information.

- a. Identification of the caller.

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- b. Identify the time and place the spill occurred or was first discovered.
- c. The type of material lost.
- d. The quantity lost.
- e. Any unusual conditions that may contribute to the spread of the release, i.e. weather, terrain, etc.
- f. Any release near or into public waters, sewers, or other areas of concern.
- g. Which agencies have been notified.
- h. What action is being taken to remediate the spill.

The Contractor should then follow any further instructions for containment and clean up.

**B. Fertilizer Runoff Control**

Fertilizer is to be applied in accordance with manufacturer=s instructions and only at rates necessary for vegetation needs. Once applied, fertilizer will be incorporated through disking to avoid losses due to inclement weather. Areas fertilized must be seeded and mulched within one week of fertilizer application.

**END OF SECTION 01500**

**SECTION 01600**  
**MATERIAL AND EQUIPMENT**

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**SECTION 01600 - MATERIAL AND EQUIPMENT**

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| 1.4 | Storage and Protection            |
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## **SECTION 01600**

### **MATERIAL AND EQUIPMENT**

#### **PART 1 - GENERAL**

##### **1.1 Related Documents**

Drawings and general provisions of the Contract, including General and Special Conditions, other Division 1 Specification Sections, and all other Divisions of the Specifications, apply to work of this Section.

##### **1.2 Products**

- A. Products include material, equipment and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.

##### **1.3 Transportation and Handling**

- A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

##### **1.4 Storage and Protection**

- A. Materials and equipment may be stored inside the construction limits in locations approved by the Engineer. The Contractor shall use existing roads for access to the site. Additional roads may be built with the approval of the Engineer. All areas disturbed for equipment access and/or material storage must be reclaimed after final use.
- B. Store products in accordance with manufacturer's instructions, with labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- C. For exterior storage of fabricated products, place on sloped supports above the ground. Cover products subject to deterioration with impervious sheet coverings; provide ventilation to avoid condensation.
- D. Store loose granular materials on solid surfaces in a well drained area; prevent mixing with foreign matter.

## **SECTION 01600**

### **MATERIAL AND EQUIPMENT**

- E. Where not in place provide, install and maintain adequate barricades, guards or protection around excavations, utilities, hazards and other items to remain.
- F. During the required excavations or other construction work, any existing privately or publicly owned structures, facilities, streets, curbs, walks, lawns, shrubs, trees, utilities, etc., that are damaged or removed by the contractor, shall be patched, repaired, or replaced and left in their original state of repair by the Contractor, to satisfaction of Engineer, the Department and authorities having jurisdiction there over, at no additional cost to the Department.

#### **1.5 Product Options and Substitutions**

- A. Options
  - 1. Products Specified by Reference Standard: Any product meeting this standard.
  - 2. Products Specified by Asimilar and equal to@ Preceding a Single Proprietary Name: Any product meeting specified requirements; named product complies with Specifications.
  - 3. Products Specified by "Basis of Design" preceding a Single Proprietary Name: "Similar and equal to" is implied unless additional manufacturer's characteristics of named product were used to design systems.
  - 4. Products Specified by Naming Products of Manufacturers, without qualification: Submit request for substitution for product or manufacturer not named.
- B. Only before the Contract Agreement is executed will Engineer consider requests from the Contractor for substitutions. Subsequently, substitutions will be considered only when a specified product or material becomes unavailable or not practical due to no fault of the Contractor, or the substitution is substantially to the Department's advantage (equal product for less life cycle cost or higher quality product at no change in the Contract sum).
- C. Whenever a material is specified or described using the name of a proprietary product or the name of a particular manufacturer or vendor, the specified item mentioned shall be understood as establishing the type, function, and quality desired. Other manufacturers' products will be accepted provided sufficient information is submitted to allow the Engineer to determine that the products proposed are equivalent to those named.
- D. Document each request for substitution with complete data substantiating compliance of proposed substitution with Contract Documents. Include:
  - 1. Comparison of Qualities of proposed substitution with that specified including all points of difference.

**SECTION 01600**  
**MATERIAL AND EQUIPMENT**

2. Samples, drawings, or engineering notes, where required or requested to show specific construction, finishes, etc.
  3. Availability of maintenance service and source of replacement parts.
  4. Changes required in other elements of the Work because of the substitution.
  5. Effect on Construction Schedule.
  6. Name and address of similar projects on which product was used and date of installation.
- E. Request constitutes a representation that the Contractor:
1. Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.
  2. Will provide the same warranty for substitution as for specified product.
  3. Will coordinate installation and make other changes which may be required for Work to be complete in all respects.
  4. Waives claims for additional costs which may subsequently become apparent.
- F. Substitutions will not be considered when they are indicated or implied on Shop Drawings or Product Data submittals without separate written Change Order proposal request.
- G. The Department, advised by the Engineer, will determine acceptability of proposed substitution.
- H. The Contractor shall bear costs for architectural or engineering services required to check proposed substitute method or type of construction and, if accepted, to prepare record drawings.

**END OF SECTION 01600**  
**END DIVISION I SPECIFICATIONS**

Contract Documents and Specifications  
for  
Kansas Department of Health and Environment  
Surface Mining Section

**DIVISION 2 – SITE WORK**





**SECTION 02100**  
**MOBILIZATION, SITE CLEARING & PREPARATION**

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**SECTION 02100**

**MOBILIZATION, SITE CLEARING & PREPARATION**

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**SECTION 02100**  
**MOBILIZATION, SITE CLEARING & PREPARATION**

**PART 1 - GENERAL**

**1.1 Description**

A. Summary of Work

1. Mobilization, preparatory work and operations necessary for the movement of personnel, equipment, supplies and incidentals to and through the Project site; and the establishment of Contractor's offices, trailers and other facilities necessary for work on the Project.
2. Trash and Debris Removal and Disposal
3. Clearing and Grubbing

B. Related Work

Section 02220: Vertical Openings & Subsidence - Excavation and Backfill  
Section 02900: Revegetation

**1.2 Quality Assurance**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the SMS.

**1.3 Site Conditions**

- A. The Drawings do not purport to show all objects existing on the site.
- B. The Project Limits, whether shown on the Drawings or not, shall encompass all areas disturbed by the Contractor's activities necessary to complete the work. Additional disturbed areas shall be kept to the smallest practical size yet be sufficient to properly perform the work. All disturbed areas shall be reclaimed.
- C. No work shall be performed under the drip line of trees that are to remain. The Contractor may request that certain trees within the Project Limits remain in place. If permission is granted by the SMS, the Contractor shall protect the tree(s) from damage.

## **SECTION 02100**

### **MOBILIZATION, SITE CLEARING & PREPARATION**

- D. Materials to be handled under this Contract include, but are not limited to, soil, rock, spoil, gob, coal, coal refuse, mud, and quantities of garbage and trash. The work may also involve removal and disposal of miscellaneous mine related scrap including but not limited to large diameter wire rope and equipment parts.
- E. Unless indicated otherwise in the Contract Documents or by the SMS, salvaged materials, such as fencing, culverts, tiling, signs, and other man-made improvements shall be considered to be property of the Contractor. Salvaged materials may be stored on site subject to the approval of the SMS until removed by the Contractor.
- F. Subsurface Voids and Possible Cave-ins
  - 1. Subsurface voids exist in the immediate areas where the excavation and backfilling activities are being performed. The Contractor shall exercise caution when working around the subsidence sites. Should voids be encountered or additional subsidences occur during performance of the work, these additional openings will be added to the list of designated sites by the SMS. No work shall be performed on any additional sites without the written approval of the SMS.
  - 2. The sides of the vertical openings may be extremely unstable. Extreme caution should be used when working around all sites to prevent personnel and/or equipment from falling into the holes. Current federal Occupational Safety and Health Administration (OSHA) safety measures shall be used for the work.

#### **1.4 Submittals**

If an off-site disposal area is selected by the Contractor, submit area location.

## **PART 2 - PRODUCTS**

#### **2.1 Materials**

Provide materials, not specifically described but required for proper completion of the work of this Section, as selected by the Contractor subject to the approval of the SMS.

## **PART 3 - EXECUTION**

#### **3.1 Surface Conditions**

- A. In company with the SMS, visit the site and verify the extent and location of clearing and site preparation required. Completely remove items scheduled to be removed, leaving surfaces clean, solid, and ready to receive new materials specified elsewhere.

**SECTION 02100**  
**MOBILIZATION, SITE CLEARING & PREPARATION**

- B. All trees outside the Project Limits shall remain undisturbed.

**3.2 Protection**

- A. Protect existing utilities indicated or made known.
- B. Protection of existing vegetation: Protect tops, trunks, and roots of existing trees and/or shrubs, indicated or implied to remain, from damage during all operations. Do not permit heavy equipment or stockpiles within branch spread.

**3.3 Clearing And Grubbing**

- A. Perform clearing and grubbing only to the extent necessary to perform excavation, grading and other required work.
- B. Clearing includes removal and disposal of surface objects, except those which are permanent or are designated to remain; removal and disposal of all debris and rubbish; and felling and disposal of trees, brush and other vegetation. In cutting of timber growth, cuts shall be made such that all trees are felled into the area to be cleared. Exercise care when clearing near the Project Limits so as not to damage existing trees or vegetation to remain.
- C. Grubbing includes removal and disposal of subsurface objects, except those which are permanent or are designated to remain; and removal and disposal of tree stumps and roots larger than 3 inches in diameter. Backfill all excavated depressions with nearby soil or spoil material, compact to approximate density of adjacent undisturbed areas, and grade entire area to drain.
- D. If permitted by the landowner, and approved by the SMS, trees and brush may be piled near the subsidence site in lieu of hauling off-site. This work shall be part of the clearing and grubbing lump sum prices.

**3.4 Debris Removal And Disposal**

- A. Remove debris, rubbish, and all waste materials resulting from the site clearing and preparation operations. Haul removed materials off-site to a licensed landfill or, if approved by KDHE, clean rubble as defined by K.S.A. 65-3402(w), except for asphalt and steel, may be buried on-site with a minimum of 2 feet of cover in approved locations.

**SECTION 02100**  
**MOBILIZATION, SITE CLEARING & PREPARATION**

- B. On-site disposal of vegetative waste materials shall be done by burying. Buried debris shall not be allowed to accumulate greater than 5 feet in depth and shall be covered with a minimum of 5 feet of cover per foot of debris. The top of the uppermost buried debris shall be at least 5 feet below final grade. Burial operations shall be permitted only with the prior approval of SMS.
- C. Some on-site surface disposal of vegetative waste materials may be allowed by the SMS and shall be done by creating brush piles for wildlife habitat. Brush piles shall not exceed 50 feet in diameter nor 10 feet in height. The numbers and locations of brush piles shall be approved by the SMS.

Brush piles may be located at the perimeter of the Project Limits or in water impoundments, but not in or immediately adjacent to public or private roads.

- D. Contractor shall obtain necessary permits and comply with all regulatory agencies governing this work.
- E. Trash/Debris Disposal and Material Removal
  - 1. Trash and/or debris which must be removed from the sites shall be disposed of in an appropriate approved manner and KDHE regulations shall be followed by the Contractor.

In summary:

- a. Household trash as defined by KDHE regulations shall be taken to a landfill approved to accept such materials. Construction/Demolition (C & D) Debris as defined by KDHE regulations shall be taken to a disposal site approved to accept C & D materials. Proof (including weigh tickets and/or invoices) of proper disposal shall be submitted to the SMS.
- b. Appliances (white goods), **except for appliances containing freon**, shall be crushed prior to loading for disposal.
- c. **Items suspected of containing freon shall be checked at the site prior to disposal.** All items for which there is any question concerning the amount of freon they may contain shall be taken to an approved freon recycling disposal point. If the appliance is missing the refrigeration equipment or otherwise definitely found not to be containing freon, it may be disposed of as "white goods" with other household trash.

## **SECTION 02100**

### **MOBILIZATION, SITE CLEARING & PREPARATION**

- d. Tires shall be separated from the other trash and debris and taken to an approved disposal or recycling point.

F. No burning will be allowed on any area of the site.

#### **G. Hazardous Material Disposal**

The Contractor shall promptly notify the SMS immediately upon discovery of, and prior to movement or disturbance of, any hazardous materials such as petroleum products, solvents, PCB=s, etc. The Contractor shall take all necessary precautions to protect personnel upon discovery of hazardous materials. The SMS will notify the appropriate agencies for proper disposal of the hazardous substances and any contaminated soils.

#### **H. Scrap Metal**

All scrap metals encountered during reclamation shall become the property of the Contractor for disposal. The Contractor shall submit to the SMS weigh tickets to verify the amount of scrap metal removed from the site for disposal. Scrap metal can include, but is not limited to machinery frames and parts, large diameter wire rope, miscellaneous equipment parts, culverts and pipe, and miscellaneous items.

#### **I. Fence Removal and Replacement**

The contractor may be required to remove and replace fence in order to obtain access to the backfill sites. The Contractor shall remove only the amount of fence necessary to complete the work. The Contractor shall take all precautions not to damage the fence when removing it and shall reuse as much of the existing fence as possible. Any new materials required by the contractor to replace a fence shall be included in the payment for the unit price for fence removal and replacement.

### **3.5 Measurement and Payment**

The construction cost of all work included in this Section of the Specifications shall be included in the Contractor's prices set forth in the Form of Bid for the work items described below. The lump sum price for each of these items shall include its pro rata share of overhead and shall constitute full payment to the Contractor for performance of the work included in this Section of the Specifications.

Measurement and payment for each work item in this Section shall be in accordance with the following:

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**MOBILIZATION, SITE CLEARING & PREPARATION**

- A. *Mobilization & Demobilization:* Payment for the cost of mobilization and demobilization and other work incidental thereto shall be included in the lump sum and unit prices set forth in the Contractor's Form of Bid. There shall be **no** separate item or payment for mobilization and demobilization for this project.
- B. *Clearing and Grubbing:* Payment clearing and grubbing shall be based on the lump sum prices stated in the Form of Bid. Payment shall be considered full compensation for furnishing the supervision, labor, materials, equipment, supplies and tools necessary for the removal and disposal of vegetation, debris, rubbish, hedge rows, brush, trees, slash, roots and any obstructions within the Project Limits. The Form of Bid has separate lump sum prices for different sizes of areas to be cleared and grubbed.
- C. *Fence Removal & Replacement:* Payment for fence removal and replacement shall be based on the linear footage of fence removed. Payment shall be considered full compensation for furnishing the supervision, labor, materials, equipment, supplies and tools necessary for the fence removal and replacement with new or used materials within the Project Limits.
- D. *Disposal of Trash, Debris, and Excess Materials:* Payment disposal of trash, debris, Freon, tires, trees and brush, and excess materials based on the unit prices stated in the Form of Bid. Payment shall be considered full compensation for furnishing the supervision, labor, materials, equipment, supplies and tools necessary for the removal and conveyance for disposal of the items to be disposed encountered within the work area. Payment shall also be considered compensation for proper disposal in accordance with the Specifications and KDHE regulations. The Form of Bid has separate unit price items for the disposal of various types of items.
- F. *Summary:* Schedule of Bid Items applicable to work covered by this Section are as follows:

<u>Description</u>	<u>Unit</u>
Clearing and Grubbing	Lump Sum/Hole by Area
Fence Removal & Replacement	Unit Price/Lineal Foot
Household Trash Disposal	Unit Price/Ton
Construction & Demolition (C & D) Debris Disposal	Unit Price/Ton
Earth and Rock Disposal	Unit Price/Ton
Tree and Brush Disposal	Unit Price/Ton
Freon Disposal	Unit Price/Each

**END OF SECTION 02100**



**SECTION 02220**

**VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

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## **SECTION 02220**

### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

#### **PART 1 General**

##### **1.1 Summary of Work**

###### **A. General**

1. Work covered by this section includes excavation, backfill, grading, and other work associated with reclamation of vertical openings, subsidences, and/or sinkholes required by the project. The work shall include, but is not limited to, the following items:
  - a. Large well graded shot rock in the bottom of the excavated hole to reduce further settling and prevent the fill from continuing to wash down the hole. This will extend to within approximately three feet of the surface. (The SMS may require that some (or all) of the rock to be grouted to reduce infiltration and improve stability.)
  - b. Six inches to one foot layer of AB-3 or crushed stone on top of the shot rock to fill the voids.
  - c. About 2 feet of compacted clay on top of the crushed stone.
  - d. Sufficient compacted clay, spoil, or other suitable material as required to reach the surface depending on the hole depth
  - e. Approximately 1 foot of topsoil covering, graded to drain

##### **1.2 Site Conditions**

- A. Materials to be handled under this Contract may include quantities of coal refuse, coal, unclassified earth (with some rocks), trash and debris.
- B. The approximate location of underground, surface and aerial utility lines and buried objects known by the SMS are indicated on the drawings. The Contractor shall be responsible for verification of the exact location of all utilities and pipelines and shall be responsible for any damage caused to these entities whether known or unknown. Dig-Safe and other utilities shall be called by the Contractor 48 hours prior to any excavation.
- C. Some of this work will occur in location where runoff and/or drainage can flow through the work area. The Contractor shall be responsible for diverting the flows or otherwise taking the necessary actions to perform the work required in spite of runoff or drainage occurring.

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### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

#### **D. Subsurface Voids and Potential Cave-ins**

Subsurface voids exist in the immediate areas where the excavation and backfilling activities are being performed. The Contractor shall exercise caution when working around the subsidence sites. Should voids be encountered or additional subsidences occur during performance of the work, these will be added to the list of designated sites by the SMS.

The sides of the vertical openings may be extremely unstable. Extreme caution should be used when working around all sites to prevent personnel and/or equipment from falling into the holes. MSHA and/or OSHA safety measures shall be used for the work.

#### **1.3 Quality Assurance**

- A. Comply with all requirements of governmental agencies having jurisdiction.
- B. All work shall be subject to the approval of the SMS prior to acceptance for payment.
- C. Bidding

Since specific conditions may require any combination of the other materials to backfill a site, it is not possible to estimate a total quantity of all items for multiple sites. Therefore, in order to provide the bidders with some indication of the amount of materials that may be used if required, an estimated quantity per site for the other materials is noted.

For bid tabulation purposes only, an estimated quantity for the initially designated holes was used, based on average quantities for site backfilling in the past. Payment for excavation and backfill associated with subsidence and vertical opening reclamation shall be based on the Contractor's Unit Prices quoted in the Form of Bid. Payment shall constitute full compensation for excavation and backfilling, riprap placement, finish grading of the site, hauling replacement, removal and disposal of trash and debris; and all other labor, equipment, tools, materials and incidentals required to complete the job as Specified herein and shown on the plans, and to the satisfaction of the SMS.

## **SECTION 02220**

### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

#### **PART 2 Products and Materials**

##### **2.1 Fill Materials**

- A. All fill materials shall be approved by the SMS prior to placement. Where applicable, all fill material shall be obtained from on-site sources such as the drainage channel construction. Any material the SMS considered unsuitable cover material, or toxic materials uncovered during excavations, such as refuse and/or spoil, shall be removed and buried or otherwise disposed of per SMS direction.
- B. Trash and debris shall be removed and disposed of per Section 2100.
- C. Concrete foundation in the backfill if properly prepared per Part 3.4.I. below.

##### **2.2 Submittals**

The Contractor shall submit weigh tickets and/invoices for materials used for backfilling the subsidence voids including rock, concrete/grout, AB-3, topsoil, etc.

##### **2.3 Backfill Materials**

- A. Various types of backfill material will be used based on the size and location of the subsidence hole. All backfill material and placement sequence is subject to acceptance by the Surface Mining Section. As much of suitable material as possible which was excavated from the subsidence shall be used as part of the backfilling.
- B. **No excavated backfill materials shall be provided from undisturbed sites in order to comply with Kansas State Historical Society requirements.**
- C. The various types of fill material are outlined below.
  - 1. Shot Rock, Bull Rock, and Riprap (Quarry Run Limestone)
    - a. This material is for use in large voids and for stream bank protection. It should have a maximum diameter less than 2 feet and contain sufficient smaller rock to fill in voids between the larger rock. The minimum diameter should be 4 inches.
    - b. If used as riprap for stream protection applications, the SMS will

## **SECTION 02220**

### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

specify the median (D50) size of the rock to be provided to insure the material will meet the application requirements (such as being large enough and well graded enough to produce a tight riprap mass.) The SMS will inspect and approve the rock to be used for riprap prior to placement. See Section 2270 for further details.

#### **2. Gravel and/or Chat**

- a. Gravel, or fine crushed rock, is to be used to fill smaller voids, filling around utilities, and choking larger aggregate backfill. The gravel consisting of crushed limestone less than 2 inches in diameter is acceptable. The gravel shall meet as KDOT AB-3 aggregate specifications, or approved equal.
- b. Chat from lead/zinc mining areas is not acceptable for backfill in coal mine related subsidences.

#### **3. Sand**

This material shall be less than 1/8 inch diameter and composed mainly of silica.

#### **4. Impervious Clay**

This material should be a homogenous clay, free of foreign material, and have a moisture content conducive to compaction.

#### **5. Topsoil**

This material should be homogenous, dark in color, and consistent with surrounding topsoil.

#### **6. Mine Spoil and/or Unclassified Fill**

- a. This material shall be a mixture of clays, rock, and shale, with the maximum rock size not exceeding 2 feet in any direction
- b. No acid material producing shales or coal in the spoil will be accepted by the SMS. Toxic spoil from the Weir-Pittsburg mining will not be accepted.

## **SECTION 02220**

### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

- c. The American Disposal Services, Wheatland Landfill, located east of Route 7 and south of Scammon, KS in Cherokee County, KS, may be possible source of material which is acceptable for use as unclassified fill.
- d. Other area and sites may also have suitable material available for backfill at no cost to the Contractor. Loading and hauling will be the responsibility of the Contractor per the Backfill Placement Only Item on the Form of Bid.

#### **7. Demolition Debris**

This material shall consist of clean concrete rubble, bricks, masonry and other suitable materials as defined by KSA 65-3402(w), except that the material shall be free of metal, asphalt, dirt, wood, rebar, trash, and other unsuitable materials. Demolition debris shall be subject to the approval of the SMS prior to use. The maximum size of the material shall not exceed 2 feet in any direction.

#### **8. Grout**

- a. The Contractor may be required to place the grout directly from mixer trucks, by pumping, or by hauling, depending on site restrictions. If pumping, or other special handling, is required, the Contractor shall be compensated for the additional costs of the special handling with an add-on price per cubic yard as designated in the Form of Bid and on the Work Orders.
- b. Depending on availability and location, the Contractor may choose to use either Type "F" Flyash grout, Type "C" Flyash grout, or a straight sand/cement grout. All grout mixes different from the mixes specified herein shall be approved by the SMS prior to placement,. All grouts shall be paid at the same unit price rate per cubic yard in place as listed in the Form of Bid.
- c. Consistency of the grout at the time of placement shall result in time of efflux through a standardized flow cone (ASTM C939) of between 12 and 20 seconds.
- d. Flyash Grout

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### VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL

#### 1) Type "F" Flyash Grout

This material shall consist of cement, water, sand, and Type "F" Flyash delivered to the site and placed. Type "F" Flyash does not have a sufficient amount of calcium oxide to set by itself. Consequently, a sufficient amount of Portland cement must be used for the mix to set. For Type "F" Flyash, the following grout mix shall be used:

<u>Material</u>	<u>Weight</u>
Portland Cement	329 pounds (9 bags)
Type "F" Flyash	658 pounds
Sand	2681 pounds
Water	45 gallons min.

Adjust the quantity of water to insure a consistency which will flow as a slurry.

#### 2) Type "C" Flyash Grout

This material shall consist of cement, water, sand, and Type "C" Flyash delivered to the site and placed. Type "C" Flyash contains sufficient amount of calcium oxide to set by itself. Portland cement is only used as a retarder to slow the reaction. Type "C" grouts may not be suitable for sites over 15 minutes from the batch plant and in extremely hot weather. For Type "C" flyash, the following mix shall be used:

<u>Material</u>	<u>Weight</u>
Portland Cement	188 pounds (2 bags)
Type "C" Flyash	500 pounds
Sand	2371 pounds
Water	65 gallons min.
Superplasticizer (if needed)	70 oz/cy (Conchem S.L. or Melchem, or SMS approved equal)
Retarder (if needed)	As needed for delivery time in

## SECTION 02220

### VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL

excess of 20 minutes

Adjust the quantity of water to insure a consistency which will flow as a slurry.

e. Sand/Cement Grout

This material shall consist of cement, water, and sand delivered to the site and placed. The Contractor may be required to place the grout directly from mixer trucks, or by pumping, depending on site restrictions. The sand/cement grout shall be composed of one (1) part Portland Cement to three (3) parts fine aggregate (KDOT Section 1102.02(c), Type FA-A), with sufficient water to produce a plastic, flowable mix. By weight, the grout shall consist of:

<u>Material</u>	<u>Weight</u>
Portland Cement	846 pounds (9 bags)
Sand	2538 pounds
Water	72 gallons

Adjust the quantity of water to insure a consistency which will flow as a slurry.

9. Concrete

- a. Concrete shall develop a strength of 3000 (2000) psi in 28 days. The concrete proportions shall be 520 pounds of aggregate and a maximum of 6-1/2 gallons of water based on dry aggregate per sack of cement. The proportion of the fine and coarse aggregate are to be adjusted by trial to obtain a slump of about 3 inches. A trial mix to obtain the above slump is 240 pounds of fine aggregate and 280 pounds of 1" coarse aggregate.
- b. The Contractor may be required to place the grout directly from mixer trucks, or by pumping, depending on site restrictions. If pumping, or other special handling is required, the Contractor shall be compensated for the additional costs of the special handling with an add-on price per cubic yard as designated in the Form of Bid and on the Work Orders.

## PART 3 Execution



## **SECTION 02220**

### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

#### **3.1 Elevations and Lines**

The locations for the grading and fills shall be field determined by the Contractor with the SMS approval. Limits of grading shall be as shown on the Drawings, or as approved by the SMS. Minor refinements to the grading limits and elevations will be done by mutual agreement, in the interest of the project and based on field conditions, at no additional cost to the SMS. It is the intent that the extent of these refinements, if any, be offsetting so that there is no significant increase or decrease in the Project work.

#### **3.2 General Care of Water**

- A. The Contractor shall be responsible for providing temporary measures during the life of the project to control water pollution through the use of berms, dikes, dams, mulches, grasses, hay bales, and/or other erosion and sediment control devices or methods. Control shall be maintained until the site erosion potential has been eliminated and the SMS approves removal.
- B. The temporary pollution control provisions herein shall be coordinated with the permanent erosion and sediment control features specified elsewhere in the contract to the extent practical to assure economical, effective and continuous erosion control. See Section 2271.

#### **3.3 Topsoil and Subsoils**

- A. Topsoil consists of earthy surface material containing sod, roots and other organic material.
- B. All topsoil, subsoils, or other soil like material encountered during earthwork operations shall be salvaged and replaced following rough grading.
- C. Any salvaged topsoil, subsoils, or soil like materials shall be used for the final cover and replaced over areas disturbed by borrow and/or construction operations.
- D. If insufficient topsoil exists on the site, clay and/or high quality spoil material may be used for the final cover, subject to SMS approval.

#### **3.4 General Backfilling Procedures**

- A. Contractor shall furnish all equipment, labor, materials, and supervision required on subsidence backfill sites located in Crawford and Cherokee Counties in

## **SECTION 02220**

### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

Southeast Kansas. All work performed shall be under the supervision of the Construction Representative for the Surface Mining Section. Tasks to be performed include, but are not necessarily limited to, the following:

1. Call Dig-Safe and other utilities to locate buried cables and pipes.
2. Clear away brush and trees, and remove trash and debris in and around subsidence holes.
3. Excavate with a backhoe to enlarge the subsidence area, remove any unsuitable backfill material, and stabilize the sides of the opening.
4. Backfill each hole to within 12 inches of the surface with materials to be designated by the Surface Mining Section. Typically, the procedure for backfilling starts with shot rock in the bottom of the hole, followed by layer of crushed stone, a layer of compacted clay, and a finally a cover of one foot of topsoil.
5. The Surface Mining Section reserves the right to use one, or all, of the specific backfill materials on any given site. The backfill material to be used will be site specific depending on the size and location of the subsidence.
6. Unusual site locations, or conditions such as utilities, may require modification of the backfilling procedure as is noted elsewhere in these specifications.
7. Place and compact at least one foot of topsoil to fill area. Mound topsoil over hole so that all water will flow off the backfilled area. Height of the mound shall be at least 10 percent of the depth of the hole. If the area is not vegetated such as a parking lot, a alternate surface cover such as gravel shall be placed over the compacted fill and fine graded to match the surrounding surface.
8. Fine grade, seed, and mulch disturbed areas with grasses that are compatible with surrounding growth if topsoil is used.
9. Clean up site and repair all damages caused by excavation and backfilling operations.

#### **B. Backfill Materials and Procedures**

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### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

1. The Surface Mining Section reserves the right to use one, or all, of the specific backfill materials on any given hole on any given site. This will be reflected in the individual work orders for each hole at each site.
2. The backfill material to be used will be site specific depending on the size and location of the problem hole. The quantities in the work orders are based on the SMS best estimates of the hole sizes, backfilling requirements, and problems with backfilling which may be encountered.
3. Unusual site locations, or conditions such as utilities, may require modification of the backfilling procedure as is noted elsewhere in these specifications.
4. Excess backfill materials shall be hauled off-site. There will be no payment for excess materials or for hauling off-site for disposal.
5. Suitable backfill material is expected to be available from channel construction at or near the subsidence in waterways sites. This material may be used if approved by the SMS and the landowner.

#### **C. Concrete and Masonry Foundations**

1. Some vertical openings are abandoned mine shafts and masonry and concrete foundations, and possibly other structures, in the immediate vicinity of the openings. When directed by the SMS, the Contractor shall remove the foundations and structures and use broken the material(s) as part of the backfill.
2. Any concrete and masonry shall be broken into pieces not exceeding 24 inches any direction and protruding rebar shall be removed.
3. No steel or reinforcing bar shall be placed in the backfill.
4. Wood, equipment, or other debris encountered during foundation removal shall be removed and disposed of per Section 2100.

#### **D. Utility and Stream Channel Backfilling Requirements**

1. Where utilities are encountered which preclude normal excavation, or where subsidence holes are located in the bottom of watercourses and

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### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

stream channels, concrete and/or grout may be required to properly seal the holes.

2. Concrete and/or grout approved backfill shall not be placed in water without the use of a tremie pipe. If necessary, the Contractor may be required to pump the concrete and/or grout to insure proper placement in small openings, or if condition preclude access for mixer trucks to the site.
3. Utilities
  - a. Under circumstances where underground utilities preclude full excavation and the placement of rock and earth backfill, the Contractor may be required to backfill with grout up to a level near the utilities.
  - b. After placement and setting of the grout, the Contractor shall backfill at least 1 foot over the utilities with sand, fine crushed stone, or gravel, and then proceed to complete the backfilling with the compacted clay. Extreme care shall be taken to insure there is no damage to the utilities.
  - c. If a utility such as a fiber optic telephone company prohibits the Contractor from performing excavation at a site, the SMS may remove the site from the designated list, or portions of the work may be performed by the Contractor in conjunction with the utility company (such as furnishing material if the utility performs the excavation work).
4. Stream Channel, Watercourses, and Riprap
  - a. Subsidence holes in stream channels may require concrete, riprap, and/or grouted shot rock as part of the backfilling procedure. The concrete and/or grouted shot rock will be required if it is necessary to construct a tight plug to prevent stream water from continually washing material down the opening.
  - b. After the grouted shot rock and/or concrete has set, the Contractor shall complete the backfilling with a 2 foot layer of compacted clay. The site shall be final graded in a manner to restore the channel cross-section to the approximate existing upstream and

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### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

downstream dimensions.

- c. If there is a danger of stream flow eroding the clay cover, the contractor may be directed by the SMS to install riprap on the channel sides and bottom as specified in Section 2270. If riprap is required, the clay cover shall be left approximately 2 feet below finish grade to allow room for installation of the riprap.

#### **E. Special Material Placement at Restricted Access Sites**

1. Some subsidences and openings may have restricted access due to structures, topography, or vegetation that cannot be altered or removed. If necessary, the SMS may request the Contractor to pump concrete or grout, and/or haul the backfill materials, to the site with a bobcat, backhoe, wheel borrow, or other appropriate piece of equipment. Such a request must be in writing from the SMS and it must be on the Work Order.
2. If so required by the SMS, the Contractor will be paid for the additional placement costs per the add-on rates for Special Material Placement on the Form of Bid.

#### **F. Backfill by Local Grading**

1. If so directed by the SMS, the Contractor shall backfill some subsidences by local regrading with a dozer, or other appropriate equipment, and no excavation. Some clearing may be required. These sites are generally shallow subsidences without openings to the underground mines and backfill material is located within 50 feet of the subsidence(s). There may be a number of subsidences (holes) in a small area. The amount of grading required is based on the estimated volume of the subsidence(s). A number of holes may be counted a one by the SMS and this will be so noted on the work order.
2. Where the Contractor is obtaining backfill material on-site and in the immediate vicinity of the holes backfilled, the Contractor shall slope the borrow area to a minimum of 4:1.
3. Any re-seeding for the borrow area(s) will be included under revegetation in the Work Order and in accordance with Section 2900.

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### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

#### **G. Backfill Material Placement Only**

1. At some sites, backfill material is available on-site, or within two and 1/2 (2 1/2) miles, at no cost to the Contractor or the SMS. Backfill material may be spoil, mine tailings, clay, demolition debris, etc. If available and suitable for backfill material, the SMS may direct the Contractor to use the available materials in lieu of the Contractor furnishing and delivering backfill materials.
2. The Contractor shall be responsible for all labor, equipment, tools, and supervision to move the backfill from the borrow area to, and placing the material in, the hole(s) to be backfilled. This will include any loading, hauling, delivery, placement, compaction, and grading.
3. Upon completion of removal of the borrow, some final grading by the Contractor may be required to blend the excavated area into the surrounding terrain and prepare it for seeding.
4. The Contractor may also be required to fine grade and seed the borrow area, if so directed by the SMS. The area for any required borrow revegetation will be included in the work order.
5. Payment for this item will be based on the cubic yards hauled. The SMS and the Contractor shall come to an agreement of the amount of material handled by hole and/or cross-section measurements, truck counts, or some other mutually agreeable means.

#### **H. Finish Grading**

1. After completion of placement of the final backfill, the Contractor shall fine grade the area to drain.
2. Where the Contractor is obtaining backfill material on-site and in the immediate vicinity of the holes backfilled, the Contractor shall slope the borrow area to a minimum of 4:1. The area of re-seeding for the borrow area will be included in the area of revegetation in the work order.
3. For areas considered lawns, the area shall be graded to permit mowing with conventional lawn mowing equipment after revegetation.

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### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

4. All rocks larger than 2", sticks, and other debris which could interfere with revegetation and subsequent mowing shall be removed and disposed off site in an approved manner.
5. Upon acceptance of finish grading work by the SMS, the Contractor shall revegetation in accordance with Section 2900.

#### **3.5 Measurement and Payment**

##### **A. General**

The construction cost of all work included in this Section of the Specifications shall be included in the Contractor's prices set forth in the Form of Bid for the work items described below. The price for each of these items shall include its pro rata share of overhead, and shall constitute full compensation to the Contractor for all labor, materials, equipment, tools, and supervision to perform the work included in this Section of the Specifications. Interim payments for earthwork will be by percentage of the total acres, linear feet, or other designated measurement completed for the specific type of work required. Measurement and payment for each work item in this Section shall be as specified in this section

##### **B. Unit Prices**

1. Payment shall be based on the unit prices shown on the Schedule of Items in the Form of Bid and submission of weigh tickets will be required for payment.
2. Unit prices shall include all equipment, materials, labor, and supervision to furnish the items bid.
3. Payment for excavation will be based on pre- and post-excavation measurements made after clearing and trash removal and prior to backfilling.

##### **C. Dump Truck and Other Equipment Payment**

1. The cost for furnishing and operating dump trucks, and other equipment, shall be included in the itemized unit cost for the materials hauled. Mobilization, operator, fuel, maintenance and any other accountable costs are to be included in the unit cost per yard or ton for the materials itemized on the Form of Bid.

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### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

2. **The Contractor's available equipment list shall be submitted for SMS evaluation with the Form of Bid as part of the bidding requirements. The equipment list shall be come part of the Contract documents after award and all equipment on the list shall be available for use on the projects when required.**

#### **D. Labor**

Labor costs shall be included in the unit and lump sum prices for items bid.

#### **E. Materials**

1. Payment for backfill materials listed in the Form of Bid will be based on those materials delivered placed as backfill on site. Quantities will be measured and paid by the appropriate unit and be based on delivery and/or weigh tickets submitted by the Contractor with the invoice. All costs associated with procurement of backfill materials, if any, shall be the responsibility of the Contractor.
2. Backfill materials are available at no cost to the Contractor on some sites such as those holes being backfilled by local grading, or at those sites where spoil ridges or tailings piles are located within a few hundred feet of the holes or shafts. Those sites for which backfill material is available will be identified by the SMS. The Contractor shall use on-site backfill materials if so directed by the SMS.
3. Payment for materials available at no cost to the contractor shall be bid and paid on a per cubic yard basis under bid items "Backfill Placement Only" and "Local Grading".
4. Payment for backfill materials listed in the Form of Bid will be based on those materials delivered placed as backfill on site. Quantities will be measured and paid by the appropriate unit and based on delivery and/or weigh tickets submitted by the Contractor with the invoice.

#### **F. Miscellaneous Materials Required**

Any miscellaneous materials outside the normal scope of the work which the SMS requests the Contractor to purchase shall be paid at the invoiced cost plus five (5)



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### **VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL**

percent for handling. Invoices shall include copies of the material invoices.

#### **G. Invoicing**

1. Payment for each individual site backfilling costs will not be made until the site has been completed. A site will be deemed to be complete for payment by the SMS upon completion of final grading, seeding, cleanup, and repair of damage, to the satisfaction of the SMS and the property owner.
2. The Contractor's invoices shall include site locations, the dates the work was performed, and itemized list of materials placed and of services performed (including delivery slips and weigh tickets).
3. Invoices which include a request for payment for miscellaneous materials shall include copies of the Contractor's bills for the materials for which payment is requested.

#### **H. Form of Bid Items**

1. *Excavation:* The unit price for this work item shall include full payment for labor, supervision, tools, and equipment for all excavation, conveyance, stockpiling, grading, care of water, and other work incidental thereto as required to complete preparation of the vertical openings and subsidences for backfilling in accordance with requirements of the Drawings and these Specifications. There will be no measurement and payment for over excavation or unauthorized excavation.
2. *Backfill Materials:* The unit prices per ton or cubic yard for backfill materials shall include full payment for labor, supervision, tools, and equipment for all excavation, conveyance, placement, compaction, grading, care of water, and other work incidental thereto furnishing and placing materials required to complete backfilling the vertical openings and subsidences to the satisfaction of the SMS, and in accordance with the Drawings and these Specifications.
3. *Special Placement:* The unit prices per ton or cubic yard for special handling of backfill materials shall include full payment for labor, supervision, tools, and equipment for pumping, and/or other conveyance, and other work incidental thereto for getting the backfill materials to the

## SECTION 02220

### VERTICAL OPENINGS & SUBSIDENCE - EXCAVATION & BACKFILL

vertical openings and subsidences to be backfilled.

4. *Miscellaneous Materials:* The Contractor shall be reimbursed for the cost of any miscellaneous materials outside the normal scope of the work which the SMS requests the Contractor to purchase, plus five (5) percent for handling. The payment shall constitute full payment for labor, supervision, tools, equipment, and other work incidental thereto for furnishing and installing the materials on site to the satisfaction of the SMS.
5. *Backfill by Local Grading:* The unit price for this work item shall include full payment for labor, supervision, tools, and equipment for all excavation, conveyance, stockpiling, grading, care of water, and other work incidental thereto as required to backfilling vertical openings and subsidences with on-site material in the immediate vicinity of the site to be backfilled in accordance with requirements of the Drawings and these Specifications. There will be no measurement and payment for over excavation, or unauthorized excavation.
6. *Backfill Material Placement Only:* The unit price for this work item shall include full payment for labor, supervision, tools, and equipment for all excavation, conveyance, stockpiling, grading, care of water, and other work incidental thereto as required to backfilling vertical openings and subsidences with backfill materials delivered on-site at no cost to the Contractor, and in accordance with requirements of the Drawings and these Specifications. There will be no measurement and payment for over excavation, or unauthorized excavation.
7. *Available Equipment List:* The Contractor's available equipment list shall be submitted for SMS evaluation with the Form of Bid as part of the bidding requirements. The equipment list shall be come part of the Contract documents after award and all equipment on the list shall be available for use on the projects when required.

- I. *Summary:* Schedule of Bid Items applicable to work covered by this Section are as follows:

Description

Unit

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Excavation	Unit Price/Cubic Yard
Shot Rock Backfill	Unit Price/Ton
Gravel Backfill	Unit Price/Ton
Impervious Clay Backfill	Unit Price/Ton
Topsoil Backfill	Unit Price/Ton
Mine Spoil Backfill	Unit Price/Ton
Grout Backfill	Unit Price/Cubic Yard
Concrete Backfill	Unit Price/Cubic Yard
Crushed Limestone (AB-3) Backfill	Unit Price/Ton
Demolition Debris Backfill	Unit Price/Ton
Riprap	Unit Price/Ton
Add-on Pumping Grout or Concrete	Unit Price/Cubic Yard
Add-on Special Hauling	Unit Price/Cubic Yard
Backfill by Local Grading	Unit Price/Cubic Yard
Backfill Placement Only	Unit Price/Cubic Yard
Miscellaneous Materials	Cost Plus 5 Percent
Available Equipment List	Required For Bid Acceptance

**END OF SECTION 02220**

**SECTION 02270**  
**DRAINAGE SYSTEMS**

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**DRAINAGE SYSTEMS**

**DIVISION 2 SPECIFICATIONS - SITE WORK**

**SECTION 2270 - SITE DRAINAGE AND EROSION CONTROL**

**PART 1 - General**

**1.1 Summary of Work**

The work under this section includes the complete installation (including subgrade preparation) of permanent erosion control, such as riprap and erosion control fabrics, all other items incidental to this work.

**1.2 Quality Assurance**

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. Comply with requirements of governmental agencies having jurisdiction and of the SMS.

**1.3 Site Conditions**

- A. Drainage work will generally involve installation of materials on finished subgrade in areas where runoff or drainage may occur. Surface flow of rainwater may be considerable should precipitation occur during construction of these items. The Contractor shall be responsible for diverting the flows or otherwise taking the necessary actions to perform the work required in spite of runoff or drainage occurring.
- B. The location of riprap structures will be as directed by the SMS in the field.

**1.4 Submittals**

- A. Submit certifications from suppliers that materials furnished meet the

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requirements of the Specifications.

- B. Submit weight and/or shipping tickets of materials delivered to the Project site for the work of this section.

### **PART 2 - Materials**

#### **2.1 Riprap**

- A. Stone for riprap shall be free from earth, soapstone, shale, shale like, or other easily disintegrated (friable, weathered, and/or deteriorated) material that will tend to decrease the durability of the material after placement. Stone shall consist of quarried limestone rock and shall be sound, durable and angular or block in shape.
- B. Stone for rock structures shall be similar to KDOT 18" light riprap and/or KDOT 24" light riprap. The stone shall conform to the size requirements specified in the KDOT Standard Specifications for State Road and Bridge Construction, Materials Division, Subsection 1116 - Stone for Riprap and as follows:

Average Size	D 50%	1.0' (12") diameter and/or 90 pounds
Maximum Size	D MAX.	1.5' (18") diameter and/or 300 pounds
Average Size	D 10%	0.33' (4") diameter and/or 4 pounds

- C. Riprap material shall be free from cracks, seams or other defects that would tend to increase its deterioration from natural causes. Any inferior rock shall be removed and replaced at the Contractors expense.
- D. The material shall contain a combined total of not more than ten percent (10%) by weight of earth, sand, shale and non-durable rock.
- E. Acceptance of riprap not conforming to the KDOT specifications shall be based on visual inspection by the SMS at the job site. Riprap removed from the site and reused shall be mixed with new riprap to conform to the gradation specification required as closely as possible. The SMS approval of riprap not conforming to KDOT specifications will be on a truck-by-truck basis.
- F. If this material is for use as stream bank protection, it should have a maximum diameter less than 2 feet and contain sufficient smaller rock to fill in voids between the larger rock. The minimum diameter should be 4 inches.
- G. If this material is to be used for riprap applications, the SMS will specify the

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median size (d50) of the rock to be provided to insure the material will meet the application requirements (such as the proper size and sufficiently well-graded enough to produce a tight riprap mass). It is estimated that a d50 of 12 inches will be used at most riprap locations. The SMS will inspect and approve the rock to be used for riprap prior to placement.

### 2.2 Riprap Bedding and Riprap Bedding Fabric

- A. Filter bedding for the riprap shall be a 3-inch thick filter aggregate layer to help prevent soil from washing into and through the riprap. **No geotextile filter fabric such as Celanese "Mirafi 140S", DuPont "Type 3401", Hoescht "Trevira 1115", or approved equal will be required for the vertical openings and subsidences excavation and backfilling project.** Stone for riprap filter aggregate layer shall be similar to KDOT Type I Stone for Filter Course and/or KDOT AB-3. The stone shall conform to the size requirements specified in the KDOT Standard Specifications for State Road and Bridge Construction, Materials Division, Subsection 1116 - Stone for Riprap, 1106.02(b).

### 2.3 Erosion Control Fabric

#### A. Temporary or Semi-Permanent

- 1. Erosion control mat (blankets) used to retard erosion and establish natural vegetation shall be machine-produced, high-velocity mat composed of 100% wood excelsior, coconut, a straw/coconut combination, or a wood/coconut combination, stitched or glued to synthetic netting (on both sides) having an approximate mesh size 3/4 inch x 3/4 inch. The netting shall be made of nylon or polypropylene with ultraviolet additives to reduce breakdown.

Erosion control mat shall be North American Green Types C125 or SC150, American Excelsior Hi-Velocity Curlex (min. weight 72 lbs. @ 400 sq. ft), or SMS approved equal.

#### B. Permanent and Turf Reinforcement Mat (TRM)

Permanent type erosion control mat (blankets) used to retard erosion and establish natural vegetation shall be machine-produced, high-velocity mat composed of 100% synthetic fiber, or a wood/coconut a combination, stitched or glued to synthetic netting (on both sides) having an approximate mesh size 3/4 inch x 3/4 inch. The fiber and netting shall be made of nylon, polypropylene, and/or

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polyethylene terephthalate (PETE) with any necessary ultraviolet additives to reduce breakdown.

Permanent erosion control mat, or TRM, shall be American Excelsior Company RECYCLEX - TRM, or SMS approved equal.

- C. Wooden anchor stakes shall be tapered hardwood, at least 12 inches long. Tapered hardwood stakes are available through North American Green (800-772-2040) and various suppliers such as A.S.P. Enterprises (816-941-9610; 800-519-2304).
- D. Wire anchor staples shall be in accordance with the specific erosion control blanket manufacturer's recommendations for the proper installation of the blanket for the conditions and location of use.
- E. Overlapping blankets shall be fastened together according to the manufacturer's recommendations. All such materials shall be of manufacturer's original quality and condition at the time of installation.
- F. Staple, or anchor stake, spacing shall be in accordance with the specific erosion control blanket manufacturer's recommendations for the proper installation of the blanket for the conditions and location of use.

## **PART 3 - Execution**

### **3.1 Protection**

Protect previous construction from damage while constructing drainage systems. Protect drainage systems from damage during subsequent construction in other areas.

### **3.2 Flow Lines and Grades**

- A. Construct drainage systems precisely to lines and grades as shown on the Drawings or as required for proper functioning.
- B. Pipe runs shall be installed straight with a uniform slope to meet entrance and exit conditions at both ends of the pipe run. Slopes shall be uniform insofar as practicable. Piping shall be installed with a minimum of 2 percent slopes unless the Drawings or field conditions indicate flatter slopes are required.
- C. Match flow lines and provide smooth transitions to avoid falling or ponding water



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at both inlet and outlet ends.

### **3.3 Riprap Installation**

#### **A. General Riprap Installation - Vertical Openings & Subsidence Backfilling**

1. Riprap consists of a minimum 6 inch layer of compacted AB-3 followed by an appropriate layer of shot rock installed as riprap. The entire mass of riprap stone shall be placed so as to conform with the existing grades and blend into the adjacent transition areas of the stream channel. The larger stones shall be well distributed and the entire mass of stone shall conform to the specified gradation. All material shall be placed and distributed such that there will be no objectionable accumulations of either the larger or smaller sizes of stone or sized stone.
2. It is the intent of this specification to produce a fairly compact riprap protection in which all sizes of material are placed in their proper proportions. Placing and/or rearranging the stone by mechanical equipment such as a backhoe will be required, as will some hand placing of individual stones to the extent necessary to secure the desired results.

#### **B. General Riprap Installation**

1. Riprap, if required, shall be installed at locations designated by the SMS in the field.
2. Following the site grading and channel construction, the subgrade for the riprap shall be excavated as necessary and graded smooth to provide bed for the filter fabric, the riprap filter course and riprap. Any existing riprap is to be salvaged and reused by mixing with new material wherever possible.
3. Where possible, the top 2 feet of subgrade below the structure shall be excavated and then replaced by being compacted in 9" loose lifts with 3 passes of a loaded rubber tired construction equipment, other appropriate mechanical compaction equipment, or hand compaction. This shall occur prior to placement of the filter bedding.
4. The geotextile is to be placed in a manner thoroughly covering the prepared surface and using a method to prevent puncture of the fabric. No construction equipment shall pass over any in-place fabric placed below

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riprap. The geotextile fabric shall be installed at all interfaces between bedding materials and the earth. For the protection of the fabric during riprap placement, a 3 inch layer of aggregate filter bedding shall be placed over the fabric prior to placement of riprap.

5. The entire mass of riprap stone shall be placed so as to conform with the existing grades and blend into the adjacent transition areas. The larger stones shall be well distributed and the entire mass of stone shall conform to the specified gradation. All material shall be placed and distributed such that there will be no objectionable accumulations of either the larger or smaller sizes of stone or sized stone.
6. It is the intent of this specification to produce a fairly compact riprap protection in which all sizes of material are placed in their proper proportions. Hand placing or rearranging of individual stones by mechanical equipment may be required to the extent necessary to secure the specified results.
7. All riprap structures shall be constructed in accordance with the designs in the Appendix of the Specifications and on the plans.
8. Spoil or earth berms shall be constructed at the inlets to the riprap structures to transition flow into the structures without short circuiting down the outside edges of the structures.

#### **3.4 Erosion Control Fabric Installation**

- A. Erosion control fabric shall be installed as shown on the Drawings and in accordance with manufacturer's recommendations. In the event of discrepancy, the strictest requirements shall apply.
- B. The area to be covered shall be graded smooth, limed, fertilized and seeded prior to installation of the erosion control fabric.
- C. Erosion control fabric shall be securely toed-in at the top and bottom of the slope. Similarly, the fabric shall be securely toed-in along all edges.
- D. **No erosion control fabric shall be installed until the grading and permanent seeding appropriate for the area has been completed.**

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### 3.5 Measurement and Payment

The construction cost of all work included in this Section of the Specifications shall be included in the Contractor's prices set forth in the Form of Bid for the work items described below. The price for each of these items shall include its pro rata share of overhead, and shall constitute full compensation to the Contractor for all labor, materials, equipment, tools, and supervision to perform the work included in this Section of the Specifications. Interim payments for earthwork will be by percentage of the total acres, linear feet, or other designated measurement completed for the specific type of work required. Measurement and payment for each work item in this Section shall be as follows:

- A. *Riprap*: Payment for the labor, materials, tools, equipment, and supervision for the installation of the riprap shall be included in the Contractor's unit price quoted in the Form of Bid. This price shall include full compensation for all excavation and filling, subgrade preparation, placement of stone, along with all materials, labor, equipment, tools and incidentals necessary for a completed job as specified herein. Payment for rough in grading shall be made under the appropriate reclamation items under Section 2220. Weigh slips and shipping documentation shall be submitted as evidence of material delivered to the site. The price shall include full compensation for loading, handling, shipping, and unloading at the site.
- B. *Summary*: Schedule of Bid Items applicable to work covered by this Section are as follows:

<u>Description</u>	<u>Unit</u>
Riprap	Unit Price/Ton

**END OF SECTION 2270**

**SECTION 02900  
REVEGETATION**

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**SECTION 02900 - REVEGETATION**

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## **SECTION 02900 REVEGETATION**

### **PART 1 - General**

#### **1.1 Summary of Work**

This work shall include seedbed preparation, soil testing, liming, fertilizing, seeding and mulching of all areas disturbed by construction operations. Should the Contractor disturb areas outside of the construction limits without authorization of the SMS, such areas will also be repaired and reseeded in accordance with these specifications at no cost to the KDHE. All work and materials shall be in accordance with these specifications.

#### **1.2 Quality Assurance**

- A. Use adequate numbers of skilled workmen for proper performance of the work.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. Comply with requirements of governmental agencies having jurisdiction and of the SMS.
- D. Applicable Standards:
  - Kansas Agricultural Liming Act of 1976
  - Kansas Commercial Fertilizer Law of 1973
  - Federal Seed Act: Rules and Regulations

#### **1.3 Site Conditions**

- A. All areas within the Project Limits, areas disturbed by construction procedures required for the completion of this Contract.
- B. Prior to the work of this Section, the Contractor shall carefully inspect the work areas and verify that work of this Section may properly commence.
- C. Seeding shall be performed only during the seasons specified. The planting operation shall not be performed during times of drought, excessive moisture, or other unfavorable climatic conditions.
- D. Most of the areas to be limed, seeded, and/or fertilized are already partially vegetated. No significant regrading is required, although some minor gully repair

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by disking may be required. These areas will only require minimal preparation, top dressing with lime and fertilizer, and seeding with a **no-till drill**.

### **1.4 Delivery, Handling and Storage**

- A. Use all means necessary to protect materials from the elements during delivery, handling and storage.
- B. Deliver packaged materials (seed, etc.) to site in supplier's original unopened containers; each container to bear certification as specified.
- C. At no time will seed materials be stored on site outside of the specified planting periods.
- D. Store packaged materials off ground and protect from moisture. Moisture damaged materials are unacceptable. Wet, moldy or otherwise damaged seed is unacceptable.

### **1.5 Submittals**

- A. Submit certificates of fertilizer supplier's certified analysis along with supplier's name and location.
- B. Submit receipts or tickets proving quantity of material used on the project.
- C. Submit seed certification and pounds of pure live seed (PLS) certification, and results of germination/purity tests for all seed to be used on the project.
- D. Submit suppliers certification on Effective Calcium Carbonate per ton of agricultural lime.
- E. Submit proof of inoculation of legumes, and proof of endophyte free status of fescue seed.

### **1.6 Site Disturbances**

- A. Take precautions to insure that equipment and vehicles do not unnecessarily disturb or damage existing grading, other site improvements, or adjacent areas to

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the work.

- B. Repair any damage and return site and adjacent areas disturbed by the Contractor's operations to original condition at no cost to the Department.

### **PART 2 - Products**

#### **2.1 Labeling and Certification**

Ship all seed and other materials with certificates of inspection required by governing authorities. Comply with regulations applicable to such materials.

#### **2.2 Agricultural Lime**

Agricultural lime shall be ground calcitic limestone conforming to the current requirements of the Kansas Agricultural Liming Act. The quality of lime furnished by the Contractor shall have Effective Calcium Carbonate of at least 50% per bulk ton of lime to be applied. The application rate shall be determined by the soil tests performed by the SMS. Lime will be paid on the basis of 100% ECC equivalent applied.

#### **2.3 Fertilizer**

- A. Inorganic fertilizer shall be a standard commercial product which, when applied at the proper rate, will supply the quantity of fertilizer specified herein in the form of total nitrogen (N), available phosphoric acid ( $P_2O_5$ ), and soluble potassium ( $K_2O$ ). Fertilizer shall be applied at the rate determined by the soil tests performed by the SMS.
- B. Fertilizer shall be uniform pelleted or granular and shall conform with the Kansas Commercial Fertilizer law as amended in 1973. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

#### **2.4 Seed**

- A. All seed shall meet or exceed requirements contained in the Specifications of this Section and Federal, State or County laws requiring inspection for plant disease and insect control. Seed shall be labeled and certified in accordance with U.S. Department of Agricultural Rules and Regulations under the Federal Seed Act. All seed shall be furnished in containers with tags showing seed mixture, purity,

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germination, weed content, name of seller, and date of testing. All seed shall be purchased from a Registered Kansas Seed Seller. All seed shall have been tested by a certified testing laboratory within nine (9) months of the seeding date, not counting the month of the last test date.

- B. The maximum noxious weed seed shall be less than 2 percent of the species.
- C. Moldy seed or seed that has been damaged in storage shall not be used.
- D. Seed mixtures shall consist of the varieties, mixtures and application rates in terms of Pure Live Seed (PLS). The rates are specified in Section 2.5.
- E. All fescue seed shall be endophyte free.

### **2.5 Pure Live Seed (PLS) Rate Determination**

- A. All seeding rates are specified as pounds of pure live seed per acre (lbs. PLS/Acre).
- B.  $\text{PLS per pound (PLS/lb)} = \% \text{ purity} \times \% \text{ germination}$
- C.  $\text{Actual pounds of seed per acre} = \frac{\text{lbs. PLS/Acre}}{\text{PLS/lb}}$

### **2.6 Mulch**

- A. Mulch shall consist of wheat, oat, or rye straw. Mulch shall be air dry straw that has been properly cured and harvested. Straw harvested after a killing frost or during dormant periods will not be acceptable. Mulch shall not be discolored, weathered, rotted, brittle, moldy, caked or otherwise degraded.
- B. Mulch shall be less than 2 years old and free of published noxious weeds and other weeds deemed undesirable by the SMS.

### **2.7 Legume Seed Inoculants**

- A. Inoculants for treating leguminous seed shall be a pure culture of nitrogen-fixing bacteria, specific for the seed species to be inoculated. The containers shall be clearly marked with the expiration date for use and the manufacturer's directions for inoculating seed.



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- B. Methods of inoculation shall conform to manufacturer's recommendations for the particular species of legume.
- C. Use sufficient inoculation to cover all seed before mixing with other seeds. Seed shall be slightly moistened or a sticker shall be used to ensure the inoculants adhere to seed.
- D. The time lapse for sowing seed following inoculation shall not exceed 24 hours.

### **PART 3 - Execution**

#### **3.1 General**

- A. When conditions are such by reason of drought, excessive moisture, frozen soil or when in the opinion of the SMS, less than satisfactory results are likely to be obtained, seeding work shall be halted as directed by the SMS and resumed only when conditions are favorable or when approved alternative or corrective measures and procedures have been affected.
- B. Contractor is to proceed with complete seeding work as rapidly as portions of the site become available within seasonal limitations. In any event, seeding shall be accomplished before the prepared seedbed becomes eroded, crusted over, or dried out and shall not be conducted when the ground is frozen or snow covered.
- C. Schedule seeding such that mulching of seedbed area takes place no later than 24 hours after seeding partial areas. If seeded areas or seed beds are damaged by adverse weather or because Contractor failed to apply mulch in a timely manner, damaged areas shall be repaired at no additional cost to the SMS.

#### **3.2 Seedbed Preparation**

- A. After fine grading of the topsoil, the Contractor shall spread the grass seed evenly, lightly rake the seed in, and lightly tamp or roll the area. Lime and fertilizer is not required.
- B. The Contractor shall revegetate topsoiled areas at the rate of 1 pound of endophyte free fescue seed per 1000 square feet. If it is determined that fescue is inappropriate for a site, the SMS may provide the Contractor with sufficient quantity of native grass seed to use in lieu of the fescue seed, or the SMS will seed the area. Revegetation costs for each site shall be paid at the appropriate lump sum based on the area disturbed.
- C. Any areas disturbed unnecessarily by the Contractor shall be fine graded and revegetated at

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the Contractor's expense.

### **3.3 Clean-up and Repairs**

- A. Remove equipment, project materials, and wastes such as oil drippings, stones, gravel, packaging containers, etc., from the site and dispose of wastes at an approved off-site location.
- B. All disturbed areas including areas outside the Project Limits, such as entrance and haul roads, shall be returned to their original condition.
- C. The materials, equipment and labor for repairs are at no additional cost to the Department.

### **3.4 Measurement and Payment**

The construction cost of all work included in this Section of the Specifications shall be included in the Contractor's prices set forth in the Form of Bid for the work items described below. The lump sum or unit price for each of these several items shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work actually constructed, measured as described herein, shall constitute full compensation to the Contractor for all labor, materials, equipment, tools, and supervision to perform the work included in this Section of the Specifications.

Measurement and payment for each work item in this Section shall be in accordance with the following:

- A. *Seeding*: The Contractor's unit prices for Seeding shall represent full payment for the planting of all seeded areas in accordance with requirements of this Section including the furnishing of all labor, supervision, seed, materials, inoculant, seedbed preparation, seeding installation, and permanent mulching, including all required equipment and labor to complete all the work as specified herein. Payment for seeding shall be at the unit price per acre quoted in appropriate items for in the Form of Bid. Payment shall be considered full compensation for a completed job in place. The SMS shall estimate the area for payment to the nearest 0.5 acre.
- B. *Temporary Mulch*: The Contractor's unit price for Temporary Mulching shall represent full payment for the application of temporary mulch for all designated areas in accordance with requirements of this Section including the furnishing of all materials, labor, tools, equipment, and supervision required to complete all the work as specified herein. Payment for mulching shall be at the unit price per acre quoted in appropriate items for in the Form of Bid. Payment shall be considered full compensation for a completed job in place.
- C. *Agricultural Lime*: The Contractor's unit price for lime used in seeding work shall represent full payment for the furnishing, delivery, application and incorporation as per these Specifications. Measurement for payment purposes shall be the actual tonnage of 100% Effective Calcium Carbonate (ECC) applied by the Contractor in complying with requirements of this Section. The

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final application rates will be based on soil tests performed by the SMS. Submittals required under SUBMITTALS in this Section must accompany each shipment of agricultural lime and will form the basis for measurement and payment. Payment for lime shall be at the unit price per ton quoted in appropriate items for lime in the Form of Bid. Payment shall be considered full compensation for a completed job in place.

- D. *Nitrogen (N), Phosphorus ( $P_2O_5$ ), and Potassium ( $K_2O$ ):* Payment for all fertilizer furnished, delivered, applied and incorporated into seedbeds, per requirements of this Section, shall be made in accordance with the separate unit prices for Nitrogen, Phosphorus and Potassium set forth in the Contractor's Form of Bid. Measurement for payment purposes shall be the actual weight in pounds of each of the fertilizer components described. No payment will be made for inert material if used in bulk fertilizer. Submittals required under SUBMITTALS in this Section must accompany each shipment of fertilizer and will form the basis for measurement and payment. Payment for fertilizer application shall be at the unit price per pound quoted in appropriate items for Seeding in the Form of Bid. Payment shall be considered full compensation for a completed job in place.
- E. *Summary:* Schedule of Bid Items applicable to work covered by this Section are as follows:

<u>Description</u>	<u>Unit</u>
Revegetation	Lump Sum/Hole by Area

**END OF SECTION 02900**